

The Mining Journal,

RAILWAY AND COMMERCIAL GAZETTE.

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

[The MINING JOURNAL is Registered at the General Post Office as a Newspaper, and for Transmission Abroad.]

No. 2278.—VOL. XLIX.

London, Saturday, April 19, 1879.

WITH
SUPPLEMENT.] { PRICE SIXPENCE.
PER ANNUM, BY POST, 21s.

M R. JAMES H. CROFTS, STOCK AND SHARE BROKER
AND MINING SHARE DEALER,
No. 1, FINCH LANE, CORNHILL, LONDON, E.C.
ESTABLISHED 1842.

BUSINESS transacted in all descriptions of MINING Stocks and Shares (British and Foreign), Consols, Banks, Bonds (Foreign and Colonial), Railways, Insurance, Assurance, Telegraph, Tramway, Shipping, Canal, Gas, Water, and Dock Shares, and all Miscellaneous Shares.

BUSINESS negotiated in Stocks and Shares not having a general market value.

A Daily Price List, issued at 5 P.M., giving latest Quotations up to close of Market, and every Friday a general List containing closing prices of the week.

MINES INSPECTED.

BANKERS: CITY BANK, LONDON; SOUTH CORNWALL BANK, ST. AUSTELL.

SPECIAL DEALINGS in the following, or part:—

20 Chapel House, £1 6s 3d. 20 Herodfoot. 25 Richmond, £9
70 Chontales, 9s. 25 Huitafall, £1 13s. 9d. 50 Rookhope, 4s.
Colorado, 39s. 180 Javali, 6s. 20 Santa Barbara, £2 6s 3d
20 East Van, £1 17s. 20 Leadhills, 23 1/2%. 20 St. Harmon.
15 Eberhardt, £4 7s. 6d. 20 Morfa Du, 10s.
10 Frontino, £2 6s. 3d. 25 N. Zeal, Kap., 10s. 6d. 20 Tankerville, £3 10s.
25 Glenroy, 10s. 50 Penstruthal, 23 1/2%. 25 N. Zeal, Kap., 10s.
50 Glyn. 100 Pestarena, 3s. 25 W. Asheton, £1 3s 9d
50 Parys Moun., 10s. 25 W. Asheton, £1 3s 9d

WANTED—50 Newport Abercarn Collieries, at £4 5s.

20 Cardiff and Swansea ditto (49 paid), 18s.

** SHARES SOLD FOR FORWARD DELIVERY (ONE, TWO, OR THREE MONTHS ON DEPOSIT OF TWENTY PER CENT.

BUSINESS on hand in all the leading Tin Shares.

RAILWAYS—SPECIAL BUSINESS.

FOREIGN BONDS—SPECIAL BUSINESS.

Fortnightly accounts opened on receipt of the usual cover.

JAMES H. CROFTS, 1, FINCH LANE, LONDON.

ESTABLISHED 1842.

M R. W. H. BUMPUS, STOCK AND SHARE BROKER,
AND
MINING SHARE DEALER,
44, THREADNEEDLE STREET, LONDON, E.C.
ESTABLISHED 1867.

BUSINESS transacted in STOCK EXCHANGE SECURITIES
and MISCELLANEOUS SHARES of every description.

RAILWAYS, BANKS, FOREIGN AND COLONIAL BONDS,
TRAMWAYS, TELEGRAPHES, and all the LEADING INVESTMENTS.

Accounts opened for the Fortnightly Settlement.
A Stock and Share List free on application.

MR. BUMPUS has SPECIAL BUSINESS in the undermentioned:—
50 Almadia, 8s. 9d. 20 East Van, 39s. 6d. 150 Penstruthal, 2s. 3d.
25 Blue Tent, £2 1/2%. 20 East Pool, 4s. 6d. 25 Port Phillip, 10s. 6d.
40 Birdseye, 1s. 6d. 50 Frongoch, 10s. 6d. 100 Pestarena, 3s. 3d.
20 Bettws-y-Coed. 20 Javali, 6s. 40 Pandora.
70 Bodidris. 75 Glenroy. 60 Parys Mount., 10s. 6d.
50 Canada Gold, 25s. 10 Great Laxey, £10 1/2%. 5 Roman Grav., 29 1/2%.
30 Colorado, 41s. 6d. 15 Herodfoot. 15 Richmond, £9 1s. 3d.
2 Carn Brea, £3 1/2%. 20 Leadhills. 20 So. Frances, £10 1/2%.
100 Chontales, 9s. 6d. 25 Frontino, 4s. 6d. 10 So. Conduorow.
5 Cape Copper, £28 1/2%. 50 Huitafall. 20 Tankerville, £3 8s. 9d.
10 Devon Consols. 20 Lead Era. 5 Van, £20 1/2%.
60 Don Pedro, 16s. 6d. 30 Leadhills. 20 Wheat Grenville, £25 1/2%.
3 Dolcoath, £29 1/2%. 25 Mellanree. 20 Wheat Peevor, £25 1/2%.
15 Eberhardt, £4 8s. 9d. 20 Marks Valley, 16s. 40 West Asheton, 2s 6d.
15 New Quebrada, 41s. 15 New Quebrada, 41s.

MINES.—Many good purchases may now be made, especially in Tin and Lead Shares, some of which (now returning good dividends) are likely to have a considerable rise, besides paying exceedingly well as an investment. Shares in several SOUND PROGRESSIVE MINES may also be secured now on favourable terms, and will probably double their present value within the next few months.

A carefully selected List on application.

SPECIAL BUSINESS, at close prices, in the SHARES of all the principal HOME and FOREIGN MINES.

A complete and reliable List of all the Leading Investments (published on the first of each month) may be obtained free on application to

WILLIAM HENRY BUMPUS, STOCK BROKER.

Offices: 44, Threadneedle Street, London, E.C.

BANKERS—The NATIONAL PROVINCIAL BANK OF ENGLAND, E.C.

M ESSRS. JONES AND HOUSTON, 25, CROSBY HALL CHAMBERS, LONDON, E.C.
STOCK AND SHARE DEALERS.

Can do BUSINESS in the following SHARES:—
50 Asbestos, 21. 20 East Pool, £1. 35 Morfa Du, 20s.
40 Almadia, £2 2s. 6d. 25 East Van, £1 17s. 6d. 50 Pant-y-Mwyn, £23 1/2%.
5 Australian, £1 7s. 6d. 20 Eberhardt, £4 7s. 6d. 100 Parys Mountain, 11s.
10 Bilton & Crump Meadow Colliery, offer wanted. 50 Flagstaff, 6s. 6d. 140 Penstruthal, 2s.
20 Bodidris, £1 1/2%. 12 Frongoch, 7s. 6d. 45 Port Phillip, 11s. 3d.
5 Cape Copper, £28. 30 Frontino, £2 7s. 6d. 5 Ryd Alan, £11 1/2%.
5 Carn Brea, £33. 40 Glenroy, 7s. 6d. 10 Richmond, £9.
30 Colorado, £2. 15 Grogwinion, £23 1/2%. 20 Roman Gravels, £8 1/2%.
20 Cook's Kitchen, £2 1/2%. Draining. 15 Tankerville, £4.
25 Cwm Brwyno. 20 Huitafall. 6 Van, £21.
100 Don Pedro, 16s. 20 Lead Era, £2. 12 West Chiverton, £2 1/2%.
Bankers: London and Provincial.

M R. E. J. BARTLETT, BRITISH AND FOREIGN STOCK AND SHARE DEALER,
No. 30, GREAT ST. HELEN'S, LONDON, E.C.

"HOW TO INVEST," post free, One Shilling, Eleventh Edition.

M R. THOMAS THOMPSON, JUN., STOCK BROKER,
1, PALMERSTON BUILDINGS, BISHOPSGATE STREET,
LONDON, E.C.

Mr. THOMPSON transacts business in every species of Stock Exchange and Mining securities.

Mr. THOMPSON affords reliable information to investors, and can give, when desired, a list of first-class Stocks and Shares, yielding 4 to 10 per cent. dividend upon present prices.—Mr. THOMPSON's weekly Circular may be had on application.

M R. R. TREDINNICK, DEALER IN STOCKS AND SHARES, CONSULTING AND ADVISING MINING ENGINEER,
7, UNION COURT, OLD BROAD STREET, E.C.

M R. GEORGE BUDGE, STOCK AND SHARE DEALER
9, GRACECHURCH STREET, LONDON, E.C. (Established 26 years)
ALL BUSINESS TRANSACTED FREE OF ANY CHARGE FOR
COMMISSION.

Notice to Investors and Speculators.

Mr. BUDGE has SPECIAL BUSINESS in—
75 Almadia and Trito, 6s. 75 Derwent.
25 Australian, 29s. 6d. 50 Devonport and Tiverton Brewery.
75 Bodidris. 80 East Caradon, 8s. 3d.
50 Carbon, £2 1/2%. 100 Exchequer.
50 Chapel House.
60 Cakemore, 23 1/2%. 7 East Pool, £11 1/2%.
4 Carn Brea, £2 1/2%. 7 Great Laxey, £26 1/2%.
150 Cambrian. 20 Gawton, 7s. 6d.
60 Devon Cons., 22 3s 9d. 10 Hornsachos, £8 1/2%.
8 Dolcoath, £29 1/2%. 100 Herodfoot.
120 Don Pedro. 150 Last Chance, 8s. 9d.
10 Day Brothers. 30 Linares, £24 1/2%.
BUYERS or SELLERS of any of the above, or holders of any Stocks or Shares not readily marketable, will do well to apply to Mr. BUDGE.

BRITISH AND FOREIGN MINES.

SHAREHOLDERS and INVESTORS desirous of PURCHASING or SELLING SHARES in COPPER, TIN, LEAD, GOLD, or SILVER MINES can do so at market prices, and obtain information regarding the same on personal application, or by letter, of—

MESSRS. PETER WATSON AND CO.
54, OLD BROAD STREET, LONDON, E.C.

Telegraphic Messages punctually attended to.

M R. ALFRED E. COOKE,
STOCK AND SHARE DEALER,
78, OLD BROAD STREET, LONDON, E.C.
ESTABLISHED 1853.

M R. JAMES STOCKER, STOCKBROKER,
2, CROWN COURT, THREADNEEDLE STREET, LONDON, E.C.

Mr. STOCKER Transacts Business in all Stock Exchange Securities.
[Established 1848.]

BUSINESS in the FOLLOWING:—
East Van, 37s. 6d. South Frances, £10 8s. Flagstaff, 4s. 6d.
Grogwinion, £2 1/2%. Tankerville, £3 1/2%. Front no. 46s.
Glyn, 10s. Wheal Peevor, £9 1/2%. Huitafall.
Great Laxey, £16 1/2%. West Ashton, 27s. 6d. Javali, 6s.
Herodfoot, £2 1/2%. Colorado, 38s. 6d. Panuicillo.
Leadhills, 37s. 6d. Chontales, 7s. 6d. Last Chance, 10s.
Parys Mountain, 10s 6d. Don Pedro, 16s. 6d. Port Phillip, 9s. 6d.
Roman Gravels, £9. Eberhardt, £4 1/2%. Richmond, £9.
LAST CHANCE PREFERENCE—WANTED TO PURCHASE, at par.

BANKERS: LONDON AND WESTMINSTER.

FERDINAND R. KIRK, 5, BIRCHIN LANE,
LONDON, E.C.

FORTNIGHTLY ACCOUNTS opened, on receipt of the usual "cover," in Railways Home and Foreign, Mining Shares, Foreign Bonds, and certain Miscellaneous Securities.

"THE WEEK."—A SEPARATE EDITION from that which appears in the Mining Journal is published every Wednesday evening, containing "Notes and Hints on the Stock Markets," with Closing Prices. May be had on application.

Bankers: London and Westminster, Lothbury.

MESSRS. BEAZLEY AND CO.,
STOCK AND SHARE DEALERS, FINANCIAL AND INSURANCE AGENTS, AUDITORS, AND ACCOUNTANTS,
9D, NEW BROAD STREET, LONDON, E.C.

The Messrs. BEAZLEY are Prepared to Undertake the Purchase and Sale of Shares in Mines, Gas, Water, Telegraph, Tramway, Bank, and Miscellaneous Companies, Railway, and Foreign Stocks, either for PROMPT CASE SETTLEMENT, usual fortnightly account, or forward delivery in ONE, TWO, or THREE MONTHS on payment of "cover," as may be agreed.

Owing to the REVIVAL in the METAL MARKETS several Mines will soon enter the DIVIDEND LIST. As Messrs. BEAZLEY have had an experience of 22 years in the London and Provincial Markets, they are in an exceptionally favourable position to give RELIABLE and EARLY advice to INVESTORS.

SPECIAL REPORTS on MINES obtained at a small fee. London management of Companies undertaken.

Messrs. BEAZLEY and Co. can deal in the following Shares for prompt cash settlement or the fortnightly account:—

* Aberyll.	Llanwrst.	Roman Grav., £8 1/2%.
* Bettws-y-Coed, 25s.	Lead Era.	So. Conduorow.
* Blaen Caein, £23 1/2%.	Leadhills.	Tamar, £1.
* Bodidris, £1 1/2%.	Leadhills.	Tamar, £1.
Cakemore, £1 1/2%.	Last Chance, 8s. 9d.	Tankerville, £3 1/2%.
* ditto, Ord., £2 1/2%.	Morfa Du, 17s. 6d.	Tincroft, £10 1/2%.
* Clementine, £1 1/2%.	* Morfa Du, 17s. 6d.	Van, £20 1/2%.
* Colorado, £2 1/2%.	* N. D. Eresty Mount.	West Chiverton, £3 1/2%.
Eberhardt, £4 1/2%.	* Pandora, 9s. 3d.	West Peevor, £3.
Great Laxey, £15 1/2%.	* Parys Mountain.	Wh. Gravels, £23 1/2%.
Herodfoot, £2 1/2%.	Penstruthal, 2s. 6d.	Wheat Peevor.

* Specially recommended for purchase.

BEAZLEY AND CO.,
9D, NEW BROAD STREET, LONDON, E.C.

M R. T. E. W. THOMAS, STOCK AND SHARE DEALER,
3, GREAT WINCHESTER STREET, E.C.

BUSINESS in the following:—

Chapel House, £1 7s. 6d.	Huitafall, £2 12s. 6d.	Roman Gravels, £5 1/2%.
Don Pedro, 16s.	Leadhills, £1 18s.	Santa Barbara, £2 7s. 6d.
East Van, £1 17s. 6d.	Leadhills, £1 18s.	Tankerville, £3 7s. 6d.
Glyn, 10s.	Parys Copper, 11s.	West Peevor, £2 7s. 6d.
Herodfoot, £2 7s. 6d.	Pateley Bridge, £1 5s.	Wh. Gravels, £23 1/2%.

Shares Bought and Sold at not prices. Telegrams promptly attended to.

M ESSRS. EKINS AND CO.,
STOCK AND SHARE DEALERS,
14, QUEEN VICTORIA STREET, LONDON, E.C.

Bankers: Metropolitan.

M R. F. CUNNINGHAM,
STOCK AND SHARE DEALER,
THE EXCHANGE,
SOUTHWARK, LONDON, S.E.

M R. JOHN L. M. FRAZER
(Fourteen years at the Great Mineral Mines),
CONSULTING MINING ENGINEER—ROYALTY AND MINERAL
ESTATE AGENT—SHAREDEALER.

MINES, MINERALS, AND MACHINERY BROKER.

OFFICE,—59, HOPE STREET, WREXHAM.

IMPORTANT TO INVESTORS IN LEAD MINES.

Having inspected the principal Lead Mines in North Wales, and in possession of the latest and most reliable information, should be consulted before buying or selling Shares, which may save thousands of pounds.

N.B.—All Mines personally inspected before being recommended.

ON SALE—A HALF SHARE in a valuable LEAD MINE, with a rich lode of lead ore in sight. Royalty low. Full particulars on application.

M R. DAVID COWAN,
CONSULTING MINING AND MECHANICAL ENGINEER,
AND LICENSED VALUATOR,
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Investigations, Reports, and Valuations made of Coal, Iron, Slates, Pyrites, and other properties at home and abroad. Enquiries for Road and Railway Materials, Mining Plant, Pipes, Castings, &c. Plans, &c., of the most modern and economical mining appliances, fittings, and arrangements.

I have been long acquainted with the principal Coal and Ironworks in the North, with the slate Quarries in North Wales, and



PARIS EXHIBITION, 1878.

**GOLD AND SILVER MEDALS AWARDED for
Steam-Engines & Boilers, also the Special Steam Pump,
with Holman's Condenser & Compound Pumping Engine.**

TANGYE BROTHERS AND HOLMAN,

HYDRAULIC AND GENERAL ENGINEERS

CORNWALL HOUSE, 35, QUEEN VICTORIA STREET, LONDON, E.C.,
AND BIRMINGHAM, (TANGYE BROTHERS), CORNWALL WORKS SOHO.

The "SPECIAL" DIRECT-ACTING STEAM PUMP, WITH Holman's Patent Self-acting Exhaust Steam Condensers.

UPWARDS OF 12,000 "SPECIAL" STEAM PUMPS ARE IN USE.

After eight years of successful application for all purposes to which steam-driven pumps can be applied, THE "SPECIAL" STEAM PUMP STILL MAINTAINS THE FIRST POSITION IN THE MARKET, notwithstanding that it alone—of all direct-acting pumps—has been subjected to the great variety of severe tests that must be encountered in such a period of time. Some valuable improvements have been suggested in the course of a long experience, and their adoption has rendered the apparatus at once the simplest and most certain in action. There is absolutely no extraneous gear, and the steam cylinder is no longer than the pump. The valves are of easy access, and are suited for pumping fluids and semi-fluids of almost any consistency.

Holman's Condenser

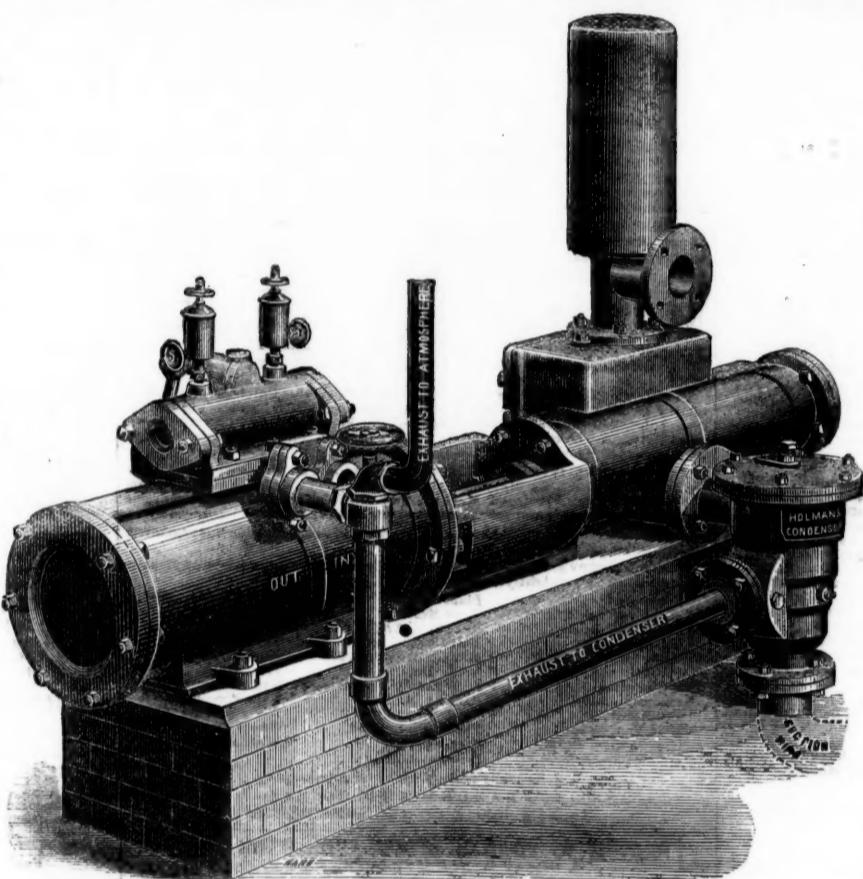
TURNS WASTE STEAM INTO
GREAT POWER.

SAVES HALF ITS COST IN PIPES AND
CONNECTIONS.

PREVENTS ALL ESCAPE OF STEAM IN
MINES OR ELSEWHERE.

REQUIRES NO EXTRA SPACE.

SAVES TWENTY TO FIFTY PER CENT.
OF FUEL.



WILLIAM ELLIOT, Esq., of the Weardale Iron and Coal Company, writes under date Sept. 17th, 1875, as follows:—“We have now THIRTY-FIVE of your SPECIAL STEAM PUMPS in operation at the various collieries under my charge—some of them employed pumping water out of our pits to the depth of 50 fms.—others employed in the pits, and a good many feeding Boilers. I have no hesitation in saying that we have found them the Cheapest and Best Pumps of the kind we have tried. I can with confidence recommend them to intending purchasers.”

Messrs. BURT, BOULTON, and HAYWOOD, Chemical Manufacturers, of London, have FORTY of the "SPECIAL" STEAM PUMPS in use at their works.

HOLMAN'S CONDENSERS

Are made to suit any size and kind of Steam Pump. They form a part of the suction pipe of the Pump, and while they effectually condense the exhaust steam they produce an average vacuum of 10 lbs. per square inch on the steam piston, increasing the duty of the Engine and effecting a saving in fuel of from 20 to per cent.

In Mining operations these Condensers will be of great value.

All Boiler Feeders are recommended to be fitted with these Condensers, as not only is the exhaust steam utilised in heating the feed water, but is returned with it into the boiler.

GREAT REDUCTION IN PRICES.

The following sizes are suitable for low and medium lifts:—

Diameter of Steam Cylinder...In.	3	4	4	4	5	5	5	6	6	6	6	7	7	7	7	7	8	8	8	8	9	9	9	9	10	10					
Diameter of Water Cylinder...In.	1½	2	3	4	3	4	5	3	4	5	6	3	4	5	6	7	4	5	6	7	8	5	6	7	8	9	5	6			
Length of Stroke.....In.	9	9	9	9	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	18	12	12	12	18	24	12	12			
Gallons per hour	680	815	1830	3250	1830	3250	5070	1830	3250	5070	7330	1830	3250	5070	7330	9750	3250	5070	7330	9750	13,000	5070	7330	9750	13,000	16,500	5070	7330			
Price of Special Pump...£	16	18	20	25	22	10	27	10	32	10	25	30	35	40	30	35	40	45	50	40	45	50	55	65	50	55	60	70	85	55	60
Extra, if fitted with Holman's Condenser and Blow-through Valve	£7	£7	£9	£11	£8	10	£11	10s	£12	10s	£9	£12	£15	£15	£10	£13	£15	£16	£12	£13	£16	£16	£22	£22	£16	£16	£23	£24	£35	£17	£17

CONTINUED.

Diameter of Steam Cylinder...In.	10	10	10	10	12	12	12	12	14	14	14	14	14	14	14	16	16	16	16	16	16	16	18	18	18	18	18	18					
Diameter of Water Cylinder...In.	7	8	9	10	6	7	8	9	10	12	7	8	9	10	12	14	8	9	10	12	14	9	10	12	14	9	10	12	14				
Length of Stroke.....In.	12	18	24	24	18	18	18	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24				
Gallons per hour	9750	13,000	16,519	20,000	7330	9750	13,000	16,519	20,000	30,000	9750	13,000	16,519	20,000	30,000	40,000	13,000	16,519	20,000	30,000	40,000	16,519	20,000	30,000	40,000	16,519	20,000	30,000	40,000	16,519	20,000	30,000	40,000
Price of Special Pump...£	65	75	90	100	75	80	85	110	120	140	110	120	130	140	160	180	140	150	160	180	200	180	190	210	230	180	190	210	230	180	190	210	230
Extra, if fitted with Holman's Condenser and Blow-through Valve	£23	£24	£25	£25	£20	£27	£27	£38	£38	£50	£28	£28	£40	£40	£55	£55	£28	£40	£40	£55	£55	£45	£45	£56	£56	£45	£45	£56	£56	£45	£45	£56	£56

Intending purchasers of Steam Pumps would do well to observe the great length of stroke, short steam cylinder, and short piston of the "Special" Steam Pump, as compared with the short stroke, long steam cylinder, and long piston of the Pumps of other makers, as the efficiency and durability of the machine, and the space occupied by same, greatly depend upon this. The advantage of long strokes will be obvious when purchasers are reminded that each set of auction and delivery valves of a "Special" Steam Pump with 24 in. stroke, running at 120 ft. per minute, would open and close only 30 times per minute, as against 120 times per minute in a Pump with only 6 in. stroke performing same duty.

The "Special" Steam Pump can be worked by Compressed Air as well as by Steam.

HUNDREDS of these PUMPS are USED for HIGH LIFTS IN MINES, for which purpose they are made with 21, 24, 26, 28, 30, and 32-inch Steam Cylinders, and 36, 48 and 72-inch Strokes.

The following Testimonial gives one Example of the Power Gained by the action of Holman's Patent Condensers:

NORLEY COLLIERY, WIGAN.

GENTLEMEN.—I have great pleasure in recording my entire satisfaction with the working of the Holman's Patent Steam Pump Condenser which you have supplied to us. The complete condensation of the steam is, apart from its value in the most economic sense, a most valuable feature in the drainage of underground work-

ings. The perfect manner in which this important result is accomplished by your Condenser is extremely creditable to you, and merits the thanks and commendation of the Mining Engineer. When we start the "Special" Steam Pump the Condenser commences working automatically, and maintains a constant vacuum of 10% lbs. per square inch, even when we run the Pump upwards of 80 strokes (106 feet) per minute. It may perhaps be interesting to you to know that when we were running the Pump at 84 strokes (168 feet) per minute, the steam gauge

indicating a steam pressure of 36 lbs. per square inch, 80 yards from the Pump and the Condenser vacuum gauge on the exhaust pipe indicating a steady vacuum of 2½ inches, I turned the exhaust steam from the Condenser into the atmosphere, when the speed at once fell to 44 strokes per minute. The working economy thus shown is really so great that the cost of the Condenser must be saved in a very short time. (Signed) J. THOMPSON.

NORTH OF ENGLAND HOUSE ... TANGYE BROTHERS, ST. NICHOLAS BUILDINGS, NEWCASTLE-ON-TYNE.
SOUTH WALES HOUSE ... TANGYE BROTHERS AND STEEL, Trefgarw Place, NEWPORT. Mon.; and Exchange Buildings, SWANSEA.

Lectures on Practical Mining in Germany.

CLAUSTHAL MINING SCHOOL NOTES.—No. CXIII.*

BY J. CLARK JEFFERSON, A.R.S.M., WH. SC.

Mining Engineer, Wakefield.

(Formerly Student at the Royal Bergakademie, Clausthal).

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SECTION V.

SINKING SHAFTS OF IRON.—The most suitable mode of forming sinking shafts is to make them of cast-iron. This method was probably first practised in England, where the iron tubbings were then cast in one piece, with inside flanges at the top and bottom. The rings are connected together by bolts passing through the flanges, between which thin pieces of deal, or tarred hemp, &c., are inserted, to ensure their being water-tight.

At present sinking linings of cast-iron are made in segments, as in the previously mentioned method of cast-iron tubing, with this difference, that since it is necessary that the outside of the lining should be as smooth as possible, the flanges and strengthening ribs must be cast on the inside. The first part of the shaft is usually built and timbered as far as the water level or quick ground in ordinary prop crib timbering, to which are attached several lengths of vertical timbers, to serve as guides to keep the sinking lining vertical during its descent. The lowest of the rings forms the so-called shoe, which consists of segments, with the vertical portion bent slightly outwards; the segments are connected together by means of bolts passing through the flanges, and the shoe is similarly connected to the last of the tubing rings. The joints are made tight by inserting tarred hemp, or thin pieces of wood, or even lead. The excavation of the ground is effected, as previously described, by sack borers. As cast iron lining is much lighter than a corresponding one of brick, the former will often necessitate the use of screw jacks, hydraulic jacks, &c., for forcing down the lining where its own weight is insufficient. Although owing to this the length of a single division of a cast-iron lining cannot be made to reach so far as a brick lining, still when it is necessary to insert a second lining of narrower dimensions, the diminution of sectional area of the shaft is not so great as in the case of a cast-iron lining as in one of brick, owing to the difference in the thickness of the respective linings. When the insertion of a second lining is resorted to the annular space between the two linings must be made water-tight. At the Anna Colliery, near to Aix-la-Chapelle, the annular space was made tight by means of wooden wedges; the inner lining was then prolonged upwards by adding three rings, the space between these and the cast-iron lining being filled with trass-mortar.

When a sinking shaft has thus been successfully lowered through quick ground a difficult and important work remains to be accomplished—to close the foot of the lining water-tight on a suitable foundation. When the strata into which the shoe of the lining has forced itself are sufficiently firm for the purpose, and there is no liability of the quick ground bursting through, the bottom of the shaft is pumped dry, a footing is cut out in the rock, wedging cribs are laid, and by means of two or three rings of cast-iron a water-tight metal tubing is carried up to the under side of the lining, and where it is possible with the removal of the shoe of the lining. It is on this account the shoe is usually cast in segments, and also that the closing tubing has the rings composed of several segments. By means of this arrangement it is easy to remove one segment of the shoe at a time, and to replace it by one of the segments of the closing tubing before next removing the diametrically opposite segment of the shoe. When it is difficult or dangerous to remove the shoe, the closing tubbings are of a slightly less diameter, so that they can be carried 5 ft. or 6 ft. up inside the lining above the shoe, the annular space between the closing rings and the lining being made tight, either by wedging or filling with mortar or with cement.

When the pumping of the water from the bottom of the shaft (for the purpose of closing the foot) is attended with any risk of the water bringing the quick ground into motion, and so occasion a breaking through of the ground, compressed air has been employed for forcing back the water. This method appears to have been first practised by M. Triger.

The use of compressed air for sinking shafts was first employed in 1839, by M. Triger, at Chalonnes, department Marne-et-Loire, since which it has been several times employed in various places in Belgium and Germany, especially Silesia. The coal basin of the above department is covered in some districts by an alluvium composed chiefly of quicksand, and through which the bed of the Loire passes for some distance. The thickness of this bed at Chalonnes amounts to between 18 and 20 yards, which must be passed before the uppermost water-tight strata of the coal measures are reached. This distance is sunk through by means of sheet-iron cylinders, the diameter of the shaft being 1.33 metres, 1.7 metres, and the other two 2 metres, the thickness of the plating of which the lining is made being 13 and 15 millimetres respectively. The lining is forced down by means of ramming or pile driving. After the lining has been sunk down through the quicksand, and as far as possible into the more solid ground, the sand enclosed in the lining is raised by means of a sledge, or pump, with a ball valve. Although the sand is thus removed it is impossible to lower the level of the water by pumping, since the bottom of the shaft is practically in communication with the bed of the Loire through the rents in the more solid ground and the quicksand. In order, therefore, to clear the bottom of the shaft of water, so that the workmen could descend, and make a proper water-tight footing for the lining, M. Triger used the following arrangement for forcing back the water by means of a column of compressed air.

The essential part of these arrangements is that to which M. Triger has given the name air sack. This consists of a cylinder of sheet-iron, slightly smaller in diameter than the inside of the shaft lining, and which is closed at the top and bottom. The annular space between the air sack and the shaft lining is closed air-tight at the upper and lower ends by means of wooden cribs. The object of this is to prevent the compressed air escaping from the part of the shaft beneath the bottom of the air sack. The air sack is suspended by a rope from the surface. A length of piping passes from the air compressor at the surface through the top and bottom covers of the air sack into the lower part of the shaft. A stop cock is placed in this air piping where it passes through the air sack, so that the compressed air can be shut off from the air compressor when the latter is standing. A similar water pipe passes through the air sack at the opposite side, the bottom of the water pipe, fitted with an ordinary snore piece, being plunged into the sump at the bottom of the shaft, the upper end discharging the water which cannot escape behind the lining at the surface. By means of an ordinary stop-cock, placed some distance above the snore-piece, the water pipe can be opened or shut. A man-hole, with doors closing air-tight, is provided in the top and bottom of the air sack, and likewise stop-cocks for placing the bottom part of the shaft and the interior of the air sack in communication, and likewise the interior of the air sack and the free atmosphere at the surface. A safety valve in the top of the air sack prevents the pressure of the air inside the air sack, and consequently that in the lower part of the shaft when in communication with the air sack from becoming too great. A manometer is likewise placed in the top of the air sack to indicate the pressure.

The stop-cock and man-hole in the bottom of the air sack being closed, and those in the top being open, compressed air is admitted through the air pipes to the lower part of the shaft; when the pressure of the air becomes sufficient the water is forced partly back into the ground, and partly through the water pipe to the surface, until the bottom of the shaft becomes cleared of water. Everything being now ready for proceeding with the work, the workmen

* Being Notes on a Course of Lectures on Mining, delivered by Herr Bergmann Dr. VOX GEODETRIK, Director of the Royal Bergakademie, Clausthal, The Harz, North Germany.

enter the air sack through the man-hole in the top, which is closed after them, as well as the stop-cock, which shuts off communication between the interior of the air sack and the free atmosphere. The stop-cock in the bottom of the air sack is then slightly opened, placing the air sack in communication with the bottom of the shaft in which the air is compressed. The compressed air enters slowly into the air sack, so that in from 15 to 20 minutes the air in the air sack and that in the lower part of the shaft are in equilibrium. The man-hole in the bottom of the air sack is then opened, and the workmen descend to the bottom of the shaft, and proceed with the excavation of the ground in the usual manner; the compressed air keeping back the water from the bottom of the shaft, all cracks in the rocks are carefully stopped with clay and the like. In this manner the shaft is sunk through the water bearing ground, till a water-tight compact rock is met with, in which a water-tight coating, generally composed of wooden cribs, is inserted, and the lining carried up and made water-tight against the previous shaft lining. Sometimes the bottom of the shaft will be obstructed by the running in of the dry quicksand. To overcome this difficulty a sheet-iron cylinder or lining is forced down in a telescopic manner within the previous one.

The greatest degree of compression of the air appears to be about $\frac{1}{2}$ atmospheres, or $3\frac{1}{2}$ atmospheres above the atmospheric pressure. As a pressure of one atmosphere will support a column of water 32 ft. in height, the above corresponds to a total height of $3\frac{1}{2} \times 32$ ft. = 112 ft.; in other words, with a pressure of $3\frac{1}{2}$ atmospheres the bottom of the shaft can be kept dry to a depth of 112 ft. below the level at which the water would stand in the shaft.

When the workmen leave the shaft the reverse mode of proceeding is followed. The air sack having been in communication with the lower part of the shaft, the dirt is drawn up and emptied out to the bottom of the air sack during the working. The workmen leave the bottom of the shaft and come into the air sack, closing the man-hole in the bottom of the shaft as well as the stop-cock, which closes the communication between the air sack and the bottom of the shaft. The stop-cock which places the air sack in communication with the free atmosphere is then gradually opened, so that in about 15 minutes the air in the sack is at the ordinary atmospheric pressure, and the man-hole in the top of the air sack can now be opened for the exit of the workmen.

The physiological and physical phenomena attendant on this mode of M. Triger's should be well understood by the engineer having charge of such an undertaking. In the majority of cases the compression of the air causes a more or less acute pain in the ear, which continues until the air enclosed in the drum of the ear is in equilibrium with that surrounding the person. The best way of hastening this equilibrium is to make rapid and powerful efforts as if in the act of swallowing. The severity and duration of the pain is different with different persons; deaf persons are said to hear better, and the climbing of the ladders is effected with greater ease. The action of the lungs is increased, and the beats of the pulse after 1 to 1½ hour in the compressed air increases from 82 to about 120 per minute. The rarefaction of the air previous to the exit of the workmen causes a considerable absorption of sensible heat, so that on coming out the workmen should be warmly clad, and fed with warm, nourishing food. One peculiarity is of some importance when sinking shafts by this method. It is found that the height of the column of water in the water pipe is generally much greater than that which corresponds to the pressure of the compressed air. This is due to the fact that the column in the water pipe is really a column of air and water, the former entering through the snore piece, so that the specific gravity of the column is much less than if it were composed of water alone.

THE WAGES QUESTION AT DEVON GREAT CONSOLS.

It is much to be regretted that the question of the settlement of the rate of wages to be paid at Devon Great Consols is in some quarters being discussed in a manner calculated to create false impressions upon the minds of both shareholders and working miners; the cause of this unsatisfactory state of things being that the matter has been almost exclusively regarded as a contest between individuals, instead of a mere business question to be settled in a purely business way. The preaching of any sentimental nonsense about the social and material comforts which working men and their families are entitled to is altogether beside the question; indeed, the points to be considered with regard to it are very few. In the first place—Are the wages paid or proposed to be paid at Devon Great Consols such as will prevent the men from earning as high wages as are paid at other mines in the district? If the wages at the other mines vary the average must be taken as the standard. Secondly,—Are the prospects of the Devon Great Consols Mines such as to induce the shareholders to carry on the mines at a loss, or is there such danger of there being a scarcity of labour in the event of reaching the stoppage of Devon Great Consols would be immaterial to them, in which case they would be justified in refusing the low wages offered?

These are questions which can be most satisfactorily answered by the Devon Great Consols shareholders and the Devon Great Consols miners, but there are certain ascertained and published facts which are worthy of consideration in connection with them. Taking the original capital subscribed for opening the mine—1024.—and the amount returned in dividends—about 1,200,000/- the profits have been enormous; but, as a matter of fact, comparatively few of those who have invested in Devon Great Consols received more than 10 per cent. per annum upon their investment, for when the dividends paid were 47/- per share per year the shares were not purchasable under 500/-, and the relation of price of share to the dividend was always during the mines' prosperity about the same. Now, from the high price of the shares in prosperous times, there were very few persons who held more than one to five shares, the natural consequence being that united action on the part of the shareholders was out of the question, and all matters of management and control were entirely in the hands of the executive. No one shareholder nor any dozen shareholders could hope to secure the prevention of nepotism and introduction of reforms however much they individually might deem action necessary, because it was through the executive alone that the general body of shareholders could be communicated with. The result was that an extravagant system of management was adopted, such extravagance constantly increasing, at Devon Great Consols, which but for the extraordinary richness of the mines would have inevitably led to ruin and liquidation. It is this system which has now to be eradicated; and, although something has already been done, it may fairly be questioned whether it does not resemble breaking off the top of the teeth and leaving the painful and useless stumps—the too numerous agents and other officers—remaining.

But there is one point connected with the Devon Great Consols Mines which officers and miners alike appear to have lost sight of, and which goes to show that even with copper ore at twice its present price the remedying of the nepotism and extravagance of former years would be none the less necessary. Not only are the reserves of ore in the mines enormously reduced, but the ore that is obtained is of a much poorer quality. The statement made at a recent meeting that during the half year ending October, 1877, the ore sold averaged 3.6s. per ton, whilst during the corresponding period of 1878 the price averaged but 1.18s. 6d. is true no doubt, but does not contain the whole truth. The decline here shown is equal about 42 per cent., but the price per unit at the Cornish Tinting on Oct. 31, 1877, was 9s. 11d. for 7½ produce, and on Nov. 1, 1878, it was 9s. 6d. for 7½ produce—so that the difference which the smelters were paying for a 5 per cent. ore at the two dates mentioned was less than 3s. per ton, or (say) 6½ per cent.—so that had the quality of the Devon Great Consols ore been maintained the company would have had to submit to a reduction of only 6½ per cent., instead of 42 per cent. The figures speak for themselves, and

afford another proof that the question is as much whether the mines should be stopped or continued as whether the costs should be reduced. Extravagance which was previously supportable is in the present condition of the mines, apart from the question of depression in the price of metals, altogether insupportable.

The fact that the miners at Devon Great Consols can at the present rate of wages—15s. to 16s. per week—earn as much as is paid at other mines in the district has already been stated, and though the *Mining Journal* would always advocate the fair payment of miners it would be absurd to attempt to disguise the fact that at present it is a question of low wages or none at all—for, as a shareholder at the meeting in November remarked, the Devon Great Consols Company is not a philanthropic society, but a commercial undertaking; if it be commercially valueless it must be abandoned. If the shareholders are content to carry on the works in the hope of better times and better mines they surely do their fair share to benefit Tavistock, and the miners will not be doing their fair share unless they willingly accept the wages of the districts. But it is not alone the working miners' wages that should be taken into consideration in connection with the efforts to keep the mines open; the fixed charges that appear to be consuming the vitality of the concern. The executive should lose no time in publishing a complete list, showing the names of all the agents, foremen, &c., employed, and the amounts paid per month to each, and it will then be marvellously surprising if it is not found that the services of two-thirds of these can be dispensed with. Many mines producing quite as much mineral as Devon Great Consols are carried on with one-fourth the staff; and, although it may be unpleasant to offer a bargain to a man who has long enjoyed the ease and emoluments of an officer, the state and prospects of the mines render it essential that this should be done. The resident manager has already been induced to resign, which represents a saving to the shareholders of 500/- per annum, and there are many others who should also be given the choice of resignation or discharge. The reference which has been made to the hardship of a man having to support a wife and nine children on 12s. 6d. per week is fortunately inapplicable at Tavistock, because there could scarcely be found in all Devon and Cornwall a miner with such a family who has less than five or six out of the nine at work, and earning fair wages. That the wages are low in Cornwall is beyond question; but, as necessities are cheap in proportion, the Cornishman is in a much better position than the working men in many other districts. It is sincerely to be wished that there will be a return of prosperity at Devon Great Consols, as well as throughout the mining districts of the country; but, in the meantime, it is well to look at all the circumstances fairly, and not permit the effort to retain abuses which have been suffered to exist and to maintain wages which neither the position nor present prospects of the mines justify to deprive the Tavistock district of its chief means of support by compelling the total suspension of the mines.

THE SCOTCH MINING SHARE MARKET—WEEKLY REPORT AND LIST OF PRICES.

During the past week there has been less business done, owing to the Easter holidays and the fortnightly settlement intervening. Particulars of the continuation business done are given below. The new account for settlement April 30 has commenced very quietly, without any decided tendency in prices. The condition of trade is rather unsettled. While the favourable change in the weather and the easy state of the money market raise some hopes of renewed business activity it is possible the unfortunate trade disputes in several parts of the country will hinder any improvement.

In shares of coal and iron companies Bolckow, Vaughan, A., have advanced 1/- per share; while Arnsdorf are reduced 15s., Lechore and Capedras 7s. 6d., and Marbella 5s. Benhar have attracted more attention, and after a few sales at 28s. 3d. they are now in request at 14s. 3d. Cairnitable and Steel Company of Canada shares are offered. In some cases it is evident sales are being attempted to meet calls of the City of Glasgow Bank liquidators, and investors would do well to avail themselves of such exceptional opportunities for purchasing. Asbury are at 7s. 6d. Andrew Knowles and Sons (2½ paid), 11s. 6d. Bolckow, Vaughan, A, 6s. to 6d.; ditto, B, 37 to 37½; ditto (stock), 11s. to 15s. and ditto (debenture bonds), 10s. Cardiff and Swansea, 15s. to 2s. Chapel House, 29s. 6d. Clyde Coal 7 per cent. debentures, 10s. Ebb Vale, 6s. to 7s. Monkland preference, 5s. to 6s. New Abercarn, 9s. Omoa and Cleland, 7s. to 7s. Park Gate, 26 dis. Rhymney, 13s. Scottish Australian, 35s. to 40s. South Wales, 7s. Thorp's Gawber Hall, 15s. to 35s. Tredegar, A, 14s.

In shares of foreign copper companies Tharsis have improved 5s.; ditto (new), 2s. 6d. also higher. The return of the Cape Company for February have been 1050 tons, and the last sale realised 11s. 1½d. per unit. It is said that experiments with Hollway's process for utilising sulphides as fuel have resulted very satisfactorily, and it is expected the invention must largely increase the profits of large smelting firms such as the Tharsis. The Tharsis shares, which were at 21½ in the commencement of the week, have, therefore, improved to 21s. 1½d. Rio Tinto 5 per cent., 63½; New Tharsis, 8½; Yorke Peninsula, 3s. 9d.; ditto (preference), 12s. 6d.

In shares of home mines, the shares are firmer. The best and safest to buy are South Conduff and South Francis. The latter should be secured at once, as the meeting is on April 22, when a profit is expected of 5000/-; the mine is in 4500 shares. Among lead mines West Chilerton shares are the best purchase. This mine will pay costs at the present price of lead, but, as is very probable, lead rises 1/- per ton, and blonde 10s. per ton, which would even then be comparatively a very low price for them, the mine would pay a dividend. No call is expected at the next four-monthly meeting, but should there be one it cannot be much. Great Laxey shares at 15s. to 18½ are ex the quarter's dividend of 5s. per share, payable on April 22. Ashtonton are at 17s. 6d.; Cook's Kitchen, 52s. 6d.; Combe Martin, 2s. 6d.; Dolcoath, 28½; East Pool, 11s.; Herodsfoot, 70s.; Killifreth, 2s. 6d.; Marke Valley, 15s.; New Cook's Kitchen, 22s. 6d.; Parva Mountain, 11s. 6d.; Parracombe, 5s.; Prince Patrick, 17s. 6d. to 22s. 6d.; Roman Gravels, 9s.; South Molton Consols, 5s.; Tincroft, 10½; Teesdale, 13½; West Wheal Valley, 15s. to 25s.; West Ashton, 25s. to 30s.; West Basset, 5s.; West Francis, 5s. 6d.; Wheal Kitty, 3s. 9d.; Wheal Uny, 3s. 6d. *Cron.*

In shares of gold and silver mines very little has been done. Richmond have been neglected; this week's run is 800,000. The satisfactory news has been received from St. John de Rey that payment of the 4 per cent. tax is suspended. Eberhardt's are lower, although the reports from the mine show no particular change to cause this. A made and Tinto have received advices of a remittance valued at 800,000. Javall has a profit of 32/- for February, while Chontales announces a loss of 195,000, owing to the stopes proving unexpectedly poor. Australasian miners wanted. Colorado are at 40s., Don Pedro, 18s., Emma, 2s. 6d., Exchequer, 3s. 9d. to 5s., Rossa Grande, 1s. 6d. to 2s. 6d., South Aurora, 2s. 6d. to 6s. Tecomina, 2s. to 4s.

In oil companies shares, prices have advanced. Uphall's are 7s. 6d. higher. Dalmeny and Broxbourne each 2s. 6d. Young's Paraffin have been wanted about 14½ all the week.

In shares of miscellaneous companies, a reduction of 10s. has been accepted for Phospho Guano at 5½. Hopkins, Gilkes, and Co. are at 11½ dis. Palmer's Shipbuilding (B) 16 dis. In wagon companies, the new shares of the Scottish Company have been sold 10s. cheaper, at 30s. Prices of others are—Bristol and South Wales, 6½. Gloucester, 6½. In chemical companies a sale of Liwes was reported by auction at 8½, although the market has not been better than 8 to 8½ all the week. Langdale's are 8s. to 8½. Newcastle, 20s. to 22s. 6d. Odam's, 10½.

BRYNBEDWEN LEAD MINE.—This valuable mining property is situated within six miles of Llanbrynmair Railway Station on the Cambrian line, in the county of Montgomery. It is surrounded by some of the best mines in Wales, and the lode is the same as some of them, and imbedded in the same rock formation. The set is 100 acres in extent, and traversed by three known large and productive lodes, two of which are parallel, and the third runs counter. The junction of these is about midway of the set, and great deposits of silver lead are expected to be found there. The lode where now wrought upon is of splendid appearance, and yielding fully 1½ ton per fathom. The lode gets stronger and more productive as depth is attained. The mine may soon be made to return 60 tons of silver-lead ore per month, at a cost of 350/- The mine is in a mountain of considerable altitude, and suitable buildings and erections are already on it. The ground is easy for excavation, and being firm will require very little timber to support levels. There are water courses made, also tramroads from the mouth of the different levels to the proposed dressing-floors, a small reservoir, and good roads to and from the mine. From the nearness of the railway the transit of ore as well as supplies of materials from and to the mines, will be cheap and easy. The property has been most favourably reported on by well-known mining engineers, who all agree that it will open up a mine of great wealth. The share capital is being subscribed for in Liverpool principally.

NEW COMPANIES.—Two or three good things in this way are about to be introduced for public support. The first is a very large set of sulphur, muriatic, and copper, the percentage of sulphur being 43. This property is being taken up by some of the leading vitriol and sulphuric acid makers, who have satisfied themselves that it will pay well. It was lately discovered in making a railway cutting. The pyrites could be raised and placed f.o.b. at Plymouth for 10s. a ton; and it is stated to be equal to Spanish at 22s. a ton. There are three large lodes, with a

mine 20 miles away, representing that it was raised there, in order to sell the other mine at a high price. He died suddenly, and this mine has not been touched from that day to this time. It is situated in a rough, out-of-the-way place, 18 miles from rail, but with a small outlay, it is estimated 10 to 20 tons of copper ore could be sent to market, of sufficient value to establish the fact that it is a good mine.

There are also two or three first-class silver-lead mines. One, a very large concern, that is estimated to return a million pounds sterling in silver-lead ore. This property is in the hands of trustees, who are willing to lease it at a moderate figure for 21 years, if evidence is given of determination and ability to develop it fully. With good pumping power the ore should be got in 15 years, and would give 40,000 per annum profit. The adjoining mine returned 1½ million pounds sterling, but was kept working over 30 years; hence, by the proposed plan to work this mine out in 15 years, it is evident 15 years' costs would be saved, which increase the profits enormously. Another company is being formed to purchase a first-class seat stone quarry in Carnarvonshire. An enterprise which is also expected to do very well is being promoted to acquire a freehold manganese property, situated in close proximity to other good mines of the same kind. The percentage of manganese varies from 70 to 80 per cent. The property is convenient to a shipping port. The capital, which includes ample funds for opening out the lodes, is 10,500, in 12 shares.

On Contango-day (Tuesday) the following were the rates of continuation current:—Contangoes: 1d. on Benhar Coal, 1d. on Glasgow Cardon, 1d. on Huntington, even on Richmond Mine, 6d. even on Tharsis, even on Uphill Oil, 4½d., 6d. on Young's Paraffin. On comparing the making-up prices of the undermentioned shares fixed this day with those at the previous settlement the movements thus shown to have occurred during past account are as follows:—Broxburn Oil have advanced 12s. 6d. per share, Tharsis 5s., Dito (new); Uphill and Young's Paraffin each 2s. 6d., and Oakbank Oil 1s.; on the other hand, Glasgow Port Washington, Monkland, and Richmond Mine are each 5s. lower, and Marbella 2s.; Benhar, Glasgow Cardon, and Huntington show no alteration.

PRINCE PATRICK.—This property is reported to have never been better than at present. They cut into a course of ore last week in a rise from the top of the level 12 ft. thick, and worth at least 10 tons per fathom. They can place lead in the market, all costs paid, at 35s. per ton, and there are few, if any, mines in Wales can do the same. With sales of 50 tons per month, at a price of only 10s. per ton, it is evident the company could pay 10 per cent. dividends. If lead advances, as it is pretty certain to do, they can send 100 tons to market, and raise the dividends to 40 or 50 per cent. Before long the shares are expected to recover to their former price of 70s. each.

WEST ASSHETON.—We should have stated last week that the 60 fm. level in this property is driven much further than the level above, and has opened up a course of ore 60 or 70 fms. in length. There are several pitches now being worked in the back of this level, and from that to surface the ground is intact. The 40 and 50 above are opening up excellent ore grounds.

HALF-YEARLY REPORTS OF FOREIGN MINING COMPANIES.—At the meeting of the Sierra Buttes Gold Company a net profit of 781,000 was reported, which, with 9367L brought forward, made 17,179L available for distribution. A dividend of 1s. 6d. per 2L share was declared, carrying forward 7991L. The earnings were small, owing to the cost of permanent works in connection with the mills and water supply. As this expenditure is exceptional, and the mine is improving, a sum of 1375L is taken from reserve to make up the dividend. The available balance of Plumas Eureka Company is 33,326L, including the amount brought forward. A dividend of 5s. per 2L share is to be paid, carrying forward 12,233L. There is an agreement between these two companies that when Plumas Eureka pays 20 per cent. for two years they are to be amalgamated on equal terms. The dividend just declared by Plumas Eureka is 15 per cent., and the returns for the current half-year have increased. They are apparently lasting, wealthy mines. When amalgamated their capital will be 526,250L, which would be the largest undertaking of this kind. The net result of the working at the original Amador mine of the London and Californian Company has been small (96L), owing to the mill being idle for 40 days. This sum is added to the available balance, which then stands at 22,748L.

J. GRANT MACLEAN, Stock and Share Broker.

Post Office Buildings, Stirling, April 17.

AN AMERICAN GRAVEL MINE ON THE FRENCH MARKET.

THE CONSOLIDATED AMADOR VOLCANO HYDRAULIC MINING COMPANY OF CALIFORNIA TRANSFORMED INTO A FRENCH COMPANY. IMPORTANT DECLARATION BY THE "JOURNAL DES DEBATS." COL. BERTON'S REPORT TO THE DIRECTOR OF THE FRENCH MINT.

As an illustration of the fact so often repeated by the *Mining Journal*, that a valuable mining property when favourably reported upon by competent and reliable authorities finds always and without difficulty a good class of purchasers, we notice in the French papers the transformation into a French company of the well-known Consolidated Amador Volcano Hydraulic Gold Mining Company of California, which was incorporated in April, 1877, and which has been since under the able management of an honourable and wealthy citizen—Mr. Charles McLaughlin, of San Francisco. The capital stock of the company is \$1,000,000, divided into 10,000 shares of \$100 each, 4800 of which have been subscribed two years ago by a number of French leading capitalists, who received in January last a dividend of \$10, or 50 francs, per share. At a late private meeting of the French shareholders it was urged that the necessary steps should be taken in order to quickly purchase the remaining 5200 shares held by Mr. McLaughlin and his associates in California, and thus to secure the full control of the interests of the American company, and transform it into a French one, which would have the entire management of the Amador Volcano mining property. This has been successfully effected, and a French company has been legally and definitely constituted in Paris.

The new company, which is called *La Compagnie des Mines d'Or et Canaux d'Amador Volcano (Californie)*, has not increased its original capital stock, which remains the same—\$1,000,000 or 5,000,000 francs, divided into 10,000 paid-up shares of 500 francs. The prospectus, which is about to be issued by the well-known Parisian banking house of Messrs. Bouvier Frères, offers for the 29th instant 5200 shares at the price of 600 francs each, entitling subscribers to all profits realised since the payment of the last dividend, and which, according to a written declaration of Mr. Charles McLaughlin, the president of the old company, will be considerably larger than last year, owing to the abundant rains which have recently taken place in California.

Among the board of directors of the French Amador Volcano Company we notice M. Francois J. Turgan, officer of the Legion of Honour, president—this gentleman is the popular author of a valuable book called "Les Grandes Usines de France," and was lately promoted in the order of the Legion of Honour as having been the first promoter of the Universal Exhibition of 1878; M. Henri de Parville, decorated, mining engineer, the distinguished scientific editor of the *Journal Officiel* and the *Journal des Débats*; M. Renévy, the able administrator of the St. Elie Mining Company; Baron Watteville, decorated, late director at the Ministry of Public Instruction; and M. Albert Rabou, decorated, late navy officer, and the actual editor-in-chief of M. Emile de Girardin's journal—*Le France*.

We note with satisfaction the following article from the Paris *Journal des Débats* of the 16th inst., in which the leading French paper offers some wise remarks with regard to the character and class of mines, which should deserve more particularly the attention of French mining investors. The recommendations made by the *Journal des Débats* are based upon the recognised authority of one of Col. Jules Berton's recent reports to the Director of the French Mint, referring to the metallic wealth of the great auriferous gravel banks of California:—

The favourable reception which seems to be given by French capitalists to the undertakings which are being organised for the working, by the new hydraulic process, of the auriferous gravels and other gold deposits in California has induced us to place before our readers a few detailed remarks, which will enlighten persons interested in the results of the above undertakings. We extract the following information from one of the reports addressed during last year by M. Jules Berton, late French vice consul in California, and president of the London and Pacific Coast Mining Bureau, to the Director-General of the French Mint in Paris, in conformity with instructions which he received from the Minister of Finance. We should on this occasion recall the fact that for several years past the Mining Bureau, the services of which have been so often pointed out by the *Times* and by the *Mining Journal*, has acquired an incontestable authority by the reports in which M. Berton had made a valuation of the probable yield of mines submitted to his examination, with great impartiality and an exactness of estimate which ultimate events have always justified. The *Journal des Débats* published on March 6, 1875, M. Berton's report upon the two celebrated mines of Nevada—the Consolidated Virginia and California—which have been so successfully worked under the management of Mr. John W. Mackay and his associates. The approximate estimate then given by M. Berton has been fully realised to the entire satisfaction of persons who, relying upon the report of the Mining Bureau, had become shareholders in the two companies formed with the view of extracting the treasures discovered in the above mines.

"The following is the passage of Col. Berton's recent report to the Director of the French Mint, referring to the auriferous gravels of California:—"I had already the honour to point out to you the principal cause which will, in my opinion, contribute at a not far distant day to materially increase the production of gold in the United States. It is the washing by the new hydraulic process, so powerfully

developed in California, of those immense auriferous gravel banks, which had been neglected for a long time, and which constitute to-day the safest and the most durable basis of the mining industry of that opulent State, which has become the horn of abundance of the American Union, not only by its extraordinary production of precious metals, but also by the inexhaustible fecundity of its soil. Among the numerous gravel properties which I have visited I should more particularly mention the two mines which were some years ago referred to me for examination. The one is situated at North Bloomfield, and the other near the little town of Volcano, Amador county, California. [Here follows a full description of the new hydraulic process as carried on at the above mines, with which the readers of the *Mining Journal* are well acquainted.] Col. Berton concludes as follows:—"In the reports which I made upon the above two mines, and which have been published by the companies, I indicated approximately the yield which could be expected by shareholders. Mining experts who have since been called upon to report on the same properties have made an estimate of the proceeds of the mines nearly double that of mine. This difference of appreciation can be explained by the fact that I had not much time to devote to each examination, and that I have made a rule to always express myself with the greatest reserve in regard to the eventual yield of mines submitted to the investigation of the Mining Bureau. Contrary to the quartz mines, the wealth of which is essentially problematical; the auriferous gravel of North Bloomfield and the placers of native gold of Volcano (Amador) are the only mines which I have recommended. I should add that since I have favourably noticed them in my report their ascertained wealth has considerably exceeded my estimate."

The *Mining Journal* entirely agrees with the views so justly expressed by the *Journal des Débats*. We shall publish in next week's *Journal* the points of interest in the reports made in 1875 by the Mining Bureau and by M. Derbec, the well-known French metallurgist, owner of the *Courrier de San Francisco*, upon the valuable mines and ditches of the Amador Volcano Company.

Meetings of Public Companies.

JAVALI COMPANY.

The ordinary general meeting of shareholders was held at the offices of the company, St. Swithin's-lane, on Thursday.

Vice-Admiral Sir LEOPOLD GEORGE HEATH, K.C.B., in the chair.

Mr. EDWARD SCHUBERT (the secretary) read the notice convening the meeting. The report and accounts were taken as read.

The CHAIRMAN said: Gentlemen,—"I think you will agree with us in thinking this is the best report that has ever yet been presented to you. It is quite true that in former years you had much more brilliant expectations held out to you, but you never had so satisfactory a story of accomplished facts. If you turn to the balance-sheet—the revenue account—you will see that we have entirely cleared off the arrears on account of the tailings mill and things of that sort that were left in the accounts of 1876 and 1877. The two sums are 944L and 809L, amounting together to 1754L. Then there is the debenture interest, which is not quite what it appears to be here, because this includes interest on debentures and loans. Its actual amount was 1767L. Then there is the 330L carried forward, and besides that there is something like 200L, which really belongs to the year 1877, but which was paid this year. The total net profit is 4059L, being rather more than 4½ per cent. upon the ordinary share capital. That profit has arisen in various ways—partly, as you will see from the annual progress table, by a larger amount of ore having been crushed during 1878 than in the previous year, and I think our manager deserves great credit for that result, notwithstanding the sickness to which the district was subjected in the autumn. Then it is partially due to a small increase in the value per ton crushed which has been realised—it is 1s. 6d. this year, against 1s. 1d. Then the price of silver has been rather more in our favour this year than last. We are in the habit of buying our dollars in England, and sending them out to the mine, and we get, of course, a profit on that transaction, but I think the main reason is that we have ceased to make any outlay on maintenance of works account. You will see that the sum expended last year was only 96L 15s. The expenses at the mine have been slightly larger, most of the increase arising from the export duty on the gold which the Nicaraguan Government had imposed. As to the second paragraph of the report, I am glad to tell you that the sickness to which reference is made has entirely ceased, and we have reason to believe that our medical officer out there—Dr. Hannay—has through his zeal and his skill been of very great advantage during the crisis, not only to our own people, but to the immediate neighbourhood. The next paragraph refers to the reduction of interest from 10 per cent. to 7 per cent. by the debenture holders. I am very glad to say that has been, or is in process of being, satisfactorily carried out, for although the gentlemen who subscribed to these debentures must feel that through that transaction they entirely saved the company from ruin, and that, therefore, they had a moral as well as a legal right to retain the higher interest until the company could pay them their capital. They have now in the great majority of cases accepted the reduction, and I am glad of this, not only for the saving of actual money, but still more because it takes away the jealousy that must have existed on the part of the 7 per cent. debenture-holders, who equally saved the company in its distress at a subsequent date, and who must have always felt more or less aggrieved that their predecessors received 10 per cent. while they only received 7 per cent. Their debentures fall due in November next, and but for this generosity—as I think I may fairly call it—on the part of the 10 per cent. debenture-holders we should have found great difficulty in renewing the 7 per cent. when November comes round. I had better leave the 4th paragraph to discuss with the next resolution, and now move "that the report and accounts as now submitted for the year ending the 31st Dec. be and are hereby received and adopted."—Mr. CHARLES GREEN seconded the motion.

A SHAREHOLDER asked whether the company had received a remittance of 1800L in gold within the last few days?—The CHAIRMAN replied that the estimated value of the remittance was 1425L, but it had not yet been received nor reduced to sovereigns. They expected to receive the account shortly. The motion was carried unanimously.

The CHAIRMAN then said: I think I had better introduce the next resolution by reading to you the circular which I sent only to the preference shareholders on Dec. 14 last. (Reads printed circular.) We have just completed, I believe, an arrangement which removes all cause of jealousy between the two classes of shareholders; and if you will pass this resolution you will remove the still more serious difficulty which exists at present between the preference and ordinary shareholders. If this resolution is passed, in the event of any serious accident by flood or fire, or civil war, destroying our machinery, and our requiring to replace it, or if in happier circumstances we should wish to largely increase it, we shall have a body of upwards of 300 gentlemen, all with one interest, and all in one boat, to apply to put their shoulders to the wheel to pull the thing through instead of, as in the existing circumstances, being able to rely only on 65 preference shareholders. I have long thought myself that something of this sort was essential to the welfare of this company. I have thought much about it, but the difficulty was to weigh truly in the balance the value of a fairly certain small present annual income against a much larger but distant income, subject to all sorts of contingencies, which might remove that income altogether from you. I felt that it was a very delicate thing to handle because, in the first place, we must not offer terms beyond the value of the preference shares; and, on the other hand, it was necessary to offer such terms as should induce the preference shareholders to accept them. So far as that last point is concerned, I seem to have given a very good terms, because out of the whole number of preference shares—which number 2486—2286 have agreed, 77 have not answered, and 138 have declined. These last belong only to two gentlemen. During the negotiations we have consulted high legal authority, and it was at first supposed that to carry this out we should have to adopt the clumsy, tedious, and expensive process of liquidating the company and reconstructing it, but in the course of the discussion it has become abundantly clear and undoubtedly certain that the issue of this preferential capital with this preference dividend was under our Articles of Association and our Memorandum of Association *ultra vires*, and we are now advised that we need not go through all that tedious, expensive process, but that all we have to do is to have your assent and then to carry out the exchange so far as it has been agreed. I will now read the fourth paragraph of the directors' report:—

"The position of the preference capital has also received the attention of your board, and communications have been made to the preference shareholders suggesting the exchange of their shares for debentures upon terms which it is believed will be mutually advantageous to all concerned. The proposal has been accepted with almost entire unanimity, and an extraordinary meeting of the company has been called for the 27th instant, to take the first of the legal steps necessary for the carrying out of the arrangement. During the discussion of this matter it has been discovered that the legality of the attachment of a preference dividend to that issue of shares is, to say the least, doubtful, and this discovery makes it more than ever desirable that the proposed exchange should be effected." Then I move—"That with reference to the 4th paragraph of the report, the board are authorised to carry out the suggested exchange on such terms as they may think proper, and as the preference shareholders may agree to."—Mr. GREEN seconded the motion.

CHAIRMAN, in reply to Mr. E. BAILEY, said so far the board could bind themselves, they would bind themselves to accept no different terms from those mentioned in the circular issued to the preference shareholders.

Mr. GARDNER, an executor of the late Mr. HALL, while expressing his satisfaction at the manner in which the matter of the exchange had been brought about, said when he accepted the 10,000L of 7 per cent. debentures, he understood that the 10 per cent. debentures would not be renewed, but paid off, and that the 7 per cent. debentures which he represented would be the first mortgage.

The CHAIRMAN, in reply, stated that no such understanding could have been given by the directors, and it was stated on the 7 per cent. debentures that they ranked below the 10 per cent. issue. As to the two dissentient preference shareholders he hoped that they would come in when they saw that they were alone in their objection; but if they went to the Court of Chancery he did not believe more advantageous terms would be given to them than those offered by the directors.

Messrs. BAILEY, H. HUGHES, and J. RUSSELL FREWER spoke in favour of the scheme, and expressed their indebtedness to the Chairman and the directors for the admirable way in which they had managed the company's affairs. Testimony was also borne to the efforts of the late Mr. Hall on behalf of the company.

The motion was then carried unanimously.

On the motion of Mr. BAILEY, seconded by Mr. H. HUGHES, the retiring director—Mr. Robert G. HALL—was re-elected a director; and on the motion of Mr. HUGHES, seconded by Mr. BAILEY, Mr. Charles Frewer was appointed auditor. Both gentlemen briefly returned thanks.

Mr. E. BAILEY moved a vote of thanks to the manager at the mine.

Mr. J. R. FREWER seconded the motion, which was supported by the CHAIRMAN, and adopted.

At the extraordinary meeting which followed, the CHAIRMAN proposed the confirmation of the following resolutions passed at the extraordinary meeting held on March 27:—"That the Articles of Association of the company be altered by the insertion therein of the following Article, to be numbered 354.—The company may from time to time by special resolution reduce its capital." Since this resolution had been passed it was found that it was not really wanted, but it could

not do any harm, and might some day be of service, and, therefore, it was worth while completing the matter.

Mr. HALL seconded the proposition, which was carried.

On the motion of Mr. J. R. FREWER, seconded by Mr. BAILEY, and supported by Mr. GARDNER, a cordial vote of thanks was passed to the Chairman and directors.—The proceedings then closed.

SOUTH CONDURROW MINING COMPANY.

The ordinary meeting of shareholders was held at the company's offices, Austinfriars, on Wednesday.

Mr. H. J. MARSHALL in the chair.

Mr. J. HICKLEY (the secretary) read the notice convening the meeting, and the accounts. The profit and loss account showed that the tin ore sold during the four months had been 252 tons 14 cwt. 2 qrs. 27 lbs., realising 9415L. 16s. 4d., or an average of 37L. 4s. 4d. per ton. The profit was 3200L. 15s. 10d., and the divisible credit balance was 5374L. 7s. 3d.

Captain RICH read the following report:—

April 14.—In reviewing the operations in this mine since your last general meeting held on January 2 the year opened with excessive rains, and a shallow adit in the eastern part of the sett having been choked up with rubbish the bottom levels in the mine were flooded for some six weeks. The engine at the time was driven at the rate of 12 strokes per minute, thereby causing us extra expense in fuel, besides loss of time in working at the bottom of the mine. The 93 end is suspended to allow a rise being put up in the back to prove the lode, and for ventilation. The lode in the 93 worth 10L. 10s., and 12L. per fathom respectively. The lode in the 90 east has a kindly appearance, and is worth 12L. per fathom. A stope behind this end is worth 12L. per fathom. The rise in the back of the 90 is communicated with the 70, and is now being continued above the 70 towards the 60; the lode in the rise spoken of is worth 18L. per fathom. The 70 east end is worth 8L. per fathom. The lode in the 70, west of Plantation shaft, has recently improved, and is worth 20L. per fathom. This is a pioneer level, and is going into whole ground. By driving some 20 fathoms further we shall enter the new ground lately added to the sett. We have now a great extent of unexplored ground in a westerly direction where we can follow the lode as deep as we choose. The Plantation shaft is sunk 13 fathoms below the 70; the lode in the deepest part is worth 12L. per fathom. We hope soon to start levels east and west of this shaft to open up the tin ground below the 70. In the 60, east of King's shaft, we are rising above the 60 with the view to communicate with the 50; we hope shortly to hole this ground, which will give' good ventilation, and open up the tin ground seen in the bottom of the 50. The lode in the 50 end east is worth 15L. per fathom. A rise or stope in the back of this level is worth 12L. per fathom. The lode in the 50, west of Plantation shaft, is disordered by a cross lode coming in contact with the tin lode. We are putting on the 50

progressive ventures in mining the gold yields of the colony are seriously falling off, as from what can be ascertained they appear to be keeping up tolerably well to the average of what they have been during the course of the last 12 months.

— *Melbourne Argus.*

FOREIGN MINES.

ST. JOHN DEL RAY MINING COMPANY (Limited).—Advices received April 2, 1879, ex Della, dated Morro Velho, March 1, 1879.—

GENERAL OPERATIONS.—GOLD EXTRACTED TO DATE.—The produce for the second division of February, a period of eight days, amounts to 10,348 5 cts. It has been derived as follows:—

	Oits.	Tons.	Oits.	Oits. per ton.
General mineral	6,517	from 1141	5	711
ditto Praia	1,081	3	195	5-288
Mineral free from killas	2,394	0	292	8-200
	9,942	3	1628	6-108
Retreatment	406	2	—	249
Total	10,348	5	1628	6-357

Advices received April 16, 1879, ex Tagus (s.), dated Morro Velho, March 16:—

GENERAL OPERATIONS.—PRODUCE FOR THE MONTH OF FEBRUARY.—The gold extracted during the above period amounts to 33,434 0 oits. = 3354.9965 ozs. troy. It has been derived as follows:—

	Oits.	Tons.	Oits.	Oits. per ton.
General mineral	20,732	5 from	3930	5-275
ditto Praia	3,661	3	695	5-268
Mineral free from killas	7,772	3	1015	7-657
	32,166	1	5640	5-704
Retreatment	1,267	9	—	224
Total	33,434	0	5640	5-928

Although the above month only contained 28 days, the quantity of mineral produced is only 38 tons less than that stamped in January, and notwithstanding that the assay of the mineral before treatment showed a decline of 308 oits. per ton compared with the preceding month, yet by more careful treatment the total produce obtained is higher by 1055 5 oits.

COST AND PROFIT.

Product for February 33,434 0 oits.

Less loss melting into bars 113 9 "

Cost 33,385 1, at 7s. 9d. per oit. = £12,928 19 6½

Profit for the month £ 6,030 12 0 3½

The charge for labour is lower than that for January in consequence of the lesser number of days contained in the above month, and the rate of exchange is also more favourable.

MINE.

Mineral raised from the mine 6320 wagons.

Mineral quarried per borer per diem 2-37

Average number of borers daily 109-08

Average number of natives daily 204-96

SUMP.—The work of securing the south wall and the removal of the disturbed ground in this section of the mine has been carried on vigorously during the past month, and is now far advanced towards completion, but we have not yet been able to resume operations therein, or in the stope immediately west of the same.

STOPIES 278 C AND D, AND 277 A.—By reason of the causes referred to in previous reports very little mineral has been obtained from 278 D. The appearance of the lode in 278 C continues favourable, being about 33 ft. wide, and apparently free from killas. The forebreast of 277 A is in pure mineral 14 ft. wide.

STOPIES 259 C, 258 D, AND 278 B.—No alteration has taken place either in the size or quality of the lode in these sections, the output of mineral therefrom having been fairly maintained, and a further removal of disturbed ground safely accomplished.

WESTERN SECTIONS.—Operations on this part of the mine have been carried on as has reported, and fair progress has been made. Excepting that a small body of killas has been met with in the western part of the sink, but which is only considered to be of a temporary nature, there is no alteration or change to report in any of these sections.

GOLD EXTRACTED TO DATE.—The produce obtained for the first division of March, a period of 11 days, amounts to 18,951 7 oits., equal to 1808 4040 ozs. troy. It has been derived as follows:—

	Oits.	Tons.	Oits.	Oits. per ton.
General mineral	8,513	0 from 1542	5	521
ditto Praia	1,435	0	385	4-309
Mineral free from killas	5,414	3	410	8-327
	13,382	3	2285	5-847
Retreatment	589	4	—	258
Total	13,951	7	2285	6-105

The above return show a marked improvement both in the number of tons stamped and in total produce obtained, compared with the corresponding division of the previous months of the year. It having become necessary to dispatch the mail two days earlier than usual, in consequence of the bad state of the roads, it has not been found practicable on this occasion to prepare the above return as per assay of bullion.

MINE.—Return of duty for 13 working days:—

Mineral raised from the mine 3300 wagons.

Mineral quarried per borer per diem 2-37

Average number of borers daily 98-77

Average number of natives daily 188-18

The attendance of natives has been somewhat below the average, but the output of mineral has been fairly maintained.

The gold rock conveying 8 boxes of gold, containing 23 bars, weighing 35,997 2 oitavas = 4149-8900 ozs. troy, was dispatched this morning for Rio and England. N.B.—The gold has duly arrived.

The following telegrams have been received:—

On March 27.—"Produce 11 days (first division of March), 13,750 oits.; yield, 6 1 oits. per ton. Profit for the month (February), 6000."

On April 4.—"Produce 10 days (second division of March), 13,000 oits.; yield, 7 oits. per ton. Cuiaabá, 16 days of March, 200 tons stamped; yield 2½ oitavas per ton."

On April 15.—"Produce for month (March), 39,500 oits.; yield 6-5 oits. per ton; value, 15,306. Cuiaabá, 400 tons stamped; yield 2 oits. per ton. Payment of 4 per cent. tax suspended."

ALMADA AND TIRITO CONSOLIDATED.—Telegram from Mr. Clemes, March 19:—We have remitted you ore and bullion, \$8000.

BLUE TENT.—Telegram from Mr. Thomas Price: Partial clean up of South Yuba, \$2600.

RICHMOND CONSOLIDATED.—Telegram from the mine at Eureka, Nevada: Week's run, \$60,000, from 1090 tons of ore. Doré bars from refinery, \$40,000.

LONDON AND CALIFORNIA.—The clean-up at the Original Amador Mine for the month of March is estimated at \$8800.

SIERRA BUTTES (Gold).—Result of the working for March:—Sierra Buttes Mine: Total receipts, \$31,107; total working expenses, \$21,422.—Plumas Eureka Mine: Total receipts, \$54,583; total working expenses, \$22,157. The Plumas Eureka clean-up for February was as follows:—Total receipts, \$44,429; total working expenses, \$22,128.

CHONTALES CONSOLIDATED.—William White, March 5: Total quartz treated for the month of February, 1118 tons, which produced 183 oits. of gold, or an average of 8½ dwt. per ton. Value of the gold, \$484. Cost for the month, 678 16s.; loss, 1951 16s.—Machinery: During the past month we have put in the new stamps shafting for 12 heads, with new cams complete, and also one of the new boxes. The stamps are now in good condition, and quite equal to when they were first new. All the machinery, tramroads, and mines are now in good working order, except the bridge leading to the mines, but which will stand, I calculate, until it is more convenient to repair it. There is also wanted against another rainy season a new shed over the stamps, which will cost about 1000 for the timber and to erect the shed complete.—Mine: San Sebastian: We have stopped from No. 1 stope 100 varas; the lode is 3 ft. wide, worth for gold 3 dwt. per ton. Stopped from No. 2 stope 105 varas; the lode is 4 ft. wide, worth 4 dwt. per ton. Stopped from No. 3 stope 120 varas; the lode is 5 ft. wide, worth 4 dwt. per ton. Stopped from No. 4 stope 55 varas; the lode is 2 ft. wide, worth 2½ dwt. per ton. Stopped from back of lode, west of No. 1 stope, 45 varas; the lode is worth 3 dwt. per ton. Stopped from back of lode, east of No. 4 stope, 25 varas; the lode is 6 ft. wide, worth 3½ dwt. per ton. We rose in the new rise 13 varas; the lode is 2 ft. wide, at present nothing to value. Total quartz raised, 394 cars, or 335 tons, worth on an average 3 dwt. per ton.

PLACERVILLE.—J. Thomas, March 24: During the past two weeks ending this date the main shaft has been sunk 11 ft., making a total depth of 475 ft. The winze has been sunk 9 ft., making a total depth of 104 ft. The 4th level has been driven 12 ft., making a total length of 75 ft.

T. Price, March 26: The 400 ft. level will soon be connected with the winze. The quartz is good in both level and winze; in the level the quartz is fully 6 ft. wide. By April 10 I expect to commence crushing without fail, and I hope it will be a long time before we cease to crush. At the present time the prospects are very favourable for a good shoot of paying ore, but I will not venture as an estimate, as actual work will soon prove its value.

T. Price, April 15: Telegram: Commence crushing ore to day.

GOLD RUN.—J. A. Stone, March 28: Enclosed find transcript of my accounts showing the amount of cash on hand August 20, 1878, to be \$184, and also the gross amount of my clean-up on the 13th inst. \$5407, making a total of \$5591.

Also an itemized statement of the sundry amounts which I have paid since August 20, 1878, to \$36417, leaving a balance in my favour of \$825. At the close of last season's work, there being but a small balance in my hands, and it being necessary to make preparations for the approaching season I made advances myself for all the bills that absolutely had to be paid before water came. The March, has still left me short of funds to pay bills that are now due, but I hope to obtain from my next clean-up enough to satisfy the creditors here. The actual working time of the last run was only 18 days, which included the opening of the winze; there was, however, 48 days intervening between the commencement of washing and the clean-up, partly owing to the lack of a sufficient quantity of water for a few days, and also being obliged to delay considerably for the Miners' Ditch Company to make repairs, but mostly to break the large boulders and the foot of the incline, much of which went down to the bed-rock to any extent, and had to be broken there. Not having washed to the bed-rock to any extent, I think the clean up a very good one for the number of hours washing 38 hours, and they have notified me that I must shut down to-morrow for them to clear up the main incline, which will take them 48 hours more. I have

already washed about nine days since the clean-up, and shall wash as long as the blocks last, which will probably be 15 days longer. I have cleaned off a strip of bed-rock since this run commenced, taking great care to break the bottom cement well. In cleaning the bed-rock I have panned and picked up from the bottom and ground sluices about \$500, and if the gold saves in the sluices will as I think it will, the next clean-up will be a good one. There is, however, no question but that a very large amount of gold escapes in the hard cement, and cannot be saved without being reduced by mill process, and as one more run will give sufficient room to set a mill, it by all means should be erected. There is now an abundance of water, and I am told there is considerable snow on the summit. I shall push the work in every way possible, hoping that my next clean-up may be as good as anticipated.

JAVALL.—The directors are in receipt of the usual monthly report from their managers, dated March 5. They stated that the mill worked 22 days, sometimes with 25, and occasionally (owing to the dry season) with only 20 stamps, crushing 1748 tons of ore, which yielded 551 oits. of gold. The remittance is valued at 1426. The expenditure has been 1043.

EBERHARDT AND AURORA.—Extracts from Capt. Drake's letter dated March 24:—Eberhardt Drift: The total length of drift up to March 15 was 499 ft., and the distance run during the week ending March 22 is 46 ft., making a total up to March 22 of 545 ft. We are in the same broken ground as that mentioned in my last letter (No. 364) with no material change of the rock, and still have good indications of coming upon ore. The side track being finished, we are now pushing the work ahead with the usual size of drift, and I am in hopes of giving you better results very soon.—Tailings: In my No. 360 (paragraph 3) Tailings, I stated that my brother was considering the matter of purchasing the company's tailings. I now beg to say that I have made an arrangement with him to make a trial run for one month in the company's mill, with the understanding that he shall pay all expenses of fitting up the mill and running the same, including also the entire expenses of the White Pine Waterworks incident to the run. He is now doing the repairs on the mill, and probably will commence running some time during this month. I charge him 75 per ton for all tailings that he works, and should he find in this trial run that he can make a success at this price he will continue their working, otherwise he has the privilege of stopping the work at the end of the month's run. Considering the ruinous low price of silver (48d. per oz.), it is indeed, very doubtful about the possibility of his making them pay.

COPIAPO.—J. H. Vivian, March 1: Dulcinea Mine: The production for the past month is 400 lbs of copper ore, with a percentage of about 33 3%. Fletcher's shaft is sunk 5-40 metres below the 150 fm. level, and the trip-plat completed; the shaft is set to sink to four men, at \$22 per metre—the lode is about 3 feet wide, and will yield 2 tons of ore per fathom. The winze to sink below the 150, south of shaft, by four men, at \$20 per metre; this winze has been sunk 9-40 metres all in a good lode of ore, and will now yield 5 tons of ore per fathom. The 150 to drive south of shaft, by two men, at \$10 per metre; the lode is about 2 feet wide, yielding 1 ton of ore per fathom. This level to drive north of shaft, by one man, at \$14 per metre; the lode is 3 ft. wide, but poor. The winze to sink below the 140, north of shaft, by two men, at \$18 per metre; lode poor. The 140 to drive south of shaft, by two men, at \$12 per metre; yielding 2 tons of ore per fathom. In the cross-cut north of the 130 we have cut through the lode, and find it to be about 2 ft. wide, carrying good stones of ore; we are now driving north on the course of the lode, by one man, at \$12 per metre. This level to drive south of shaft, by one man, at \$9 per metre; lode poor. A rise in the back of the 40, by one man, at \$8 per metre, to effect a communication with the 30 as quickly as possible. The 60 where crushed has been secured by timber 10 fathoms, but still having 12 fathoms more which requires timbering.

NEW ZEALAND KAPANGA.—James Thomas, March 1: The 67 Level: Since my last advice I put the men to stop the back of this level, commanding from the sump winze, carrying the stope south; they have stopped 2 fathoms long by 1 fathom high—the lode is strong and regular, averaging 2 ft. wide of soft quartz and gritty flockan, and yielding occasionally some good specimens and good general quartz for crushing.—Stope above 60: This stope, south of sump winze, has been further stopped 1 fathom long by 1 fathom high; the lode continues about 18 inches wide of friable quartz, intermixed with soft flockan. Some days rich specimen stone is obtained; when gold is thus seen the general lode stuff returns well.—The 50 South: At a distance of 15 fathoms south of the main cross-cut a dropper or cross-bench became exposed in the hard regular hanging wall, bearing at right angles with the lode; on opening on this branch for 6 ft. it appears to turn parallel with the course of the lode, increasing in size from 6 to 14 in. wide of strong healthy compact quartz. In thus far opening on it 8 lbs. of specimens were obtained, which yield 2 oits. of gold per lb. of stone; this branch has every indication of being a feeder to the lode, and a true specimen leader.—Crushing: From the 67 stope the quartz crushed has been 15 tons; yield, 10 oits.; with 10 lbs. of specimens, yield 12 oits. The 60 stope crushed 25 tons; yield, 12 oits.; with 15 lbs. of specimens, yield 10 oits. The 50 cross branch crushed 12 tons; yield, 10 oits.; with 8 lbs. of specimens, yield 16 oits. Total quartz crushed, 52 tons; yield, 32 oits.; with 36 lbs. of specimens, yield 35 oits., or

Cwm Brwyno Lead Mining Company

(LIMITED).

CAPITAL £30,000, IN 15,000 SHARES OF £2 EACH.

FIRST ISSUE OF 3000 SHARES AT PAR.

This company has one of the very best mines in Wales. And the fact of its being already thoroughly developed and worked entirely by water power only, should be sufficient to recommend it to investors.

The miners are now breaking down rich ore in several of the levels, and it is estimated that over £30,000 of ore can be got and dressed from what is in sight. There are two lodes in the sett untouched besides the one now opened, so there is an ample field for 20 or 30 years' working, and with the skipway renewed on the double principle, so as to facilitate the drawing of the ore, and improved dressing machinery, 100 tons of lead per month can be sent to market at a small cost compared with those mines which are worked by steam machinery.

Application for prospectuses and shares to be made to the Secretary, at the offices of the company, 14 and 15, St. Swithin's-lane, E.C.; or to any of the Branches of the National Provincial Bank of England.

EXTRACT FROM MANAGER'S REPORT MADE TO THE DIRECTORS AT THEIR BOARD MEETING, ON THE 2ND INST.

"I have to report that Cwm Brwyno, after long quietude, is now actively at work. The weather having improved, so as to enable us to get water from the mountains, we have now all the wheels at work, and shall go on dressing as quickly as our present inferior dressing machines will allow; but we can never expect to make large returns till we get the new machinery erected, the importance of which I cannot too forcibly impress on the attention of the directors. The 80 fm. level end driving now continues to improve, and is already in a good course of ore intact from the 56 fm. level. The 80 fm. level stope is also good working for silver ore (samples of which you have before you, showing a much larger proportion of silver than that assayed). We are not at the 92 fm. level yet, but by continual pumping we must reach it in a day or two."

EXTRACT OF REPORT, APRIL 8.

"Since my last report of the 2nd inst. the water has been forked down to the 104, at which level, and also in the 92 west, lead ore can be seen worth 4 tons to the fathom. The machines are now busy dressing the ore on surface, and we shall have a parcel of 30 tons for sale this month, and every month will find an increase in our production."

Registration of New Companies.

The following joint-stock companies have been duly registered:—

THE PATELEY BRIDGE COMPANY (Limited).—Capital 30,000*l.*, in shares of 1*l.* To acquire by purchase, or otherwise, the mines, minerals, farms, lands, cottages, smelting works, materials, rolling-stock, working plant, and other chattels, the property of the Pateley Bridge Lead Mines and Smelting Company (Limited), in liquidation, comprised in a certain agreement made between the debenture-holders, trustees of the said Pateley Bridge Lead Mines and Smelting Company (Limited) of the first part, the Pateley Bridge Company of the second part, James H. Nicolls of the third part, and W. J. Lavington, on behalf of the company, and the carrying out of the terms, payments, and satisfaction of the liabilities mentioned in such an agreement. The acquiring of any other lands, mines, mining property, machinery, plant, or other property appertaining to mining in Yorkshire or elsewhere. The working, raising, winning, and getting of lead ore, and other ores, metals, minerals, &c., and generally to carry on the business of a lead mining and smelting company. The subscribers (who take one share each) are—W. Adams, Richmond; J. Tibbitt, jun., Balham; G. H. Finch, Southwark; W. R. B. Watts, Upper Norwood; W. R. Horncastle, 61, Cheapside; W. H. Everitt, 34, Bouverie-street; J. Rogers, 40, Threadneedle-street; M. Jaffe, 52, Lime-street.

THE POTTERY AND GLASS TRADES' JOURNAL ASSOCIATION (Limited).—Capital 10,000*l.*, in shares of 5*l.* The purchasing the goodwill, business, &c., of the Pottery and Glass Trades Journal, and carrying on the said periodical. The subscribers (who take one share each) are—W. Adams, Richmond; J. Tibbitt, jun., Balham; G. H. Finch, Southwark; W. R. B. Watts, Upper Norwood; W. R. Horncastle, 61, Cheapside; W. H. Everitt, 34, Bouverie-street; J. Rogers, 40, Threadneedle-street; M. Jaffe, 52, Lime-street.

THE LAND INVESTMENT COMPANY (Limited).—Capital 10,000*l.*, in shares of 5*l.* The acquisition, by purchase or otherwise, of lands, houses, and property in England and Wales; the erection of houses and buildings, and selling, leasing, and disposing of same. The subscribers (who take one share each) are—J. Bird, 173, Bishopsgate-street Without; J. Kennard, 14, Devonshire-square; W. McDonald, Lower Edmonton; T. Denny, jun., 57, Belvidere-road; F. Whitmore, 14, Devonshire-square; G. Thatcher, 19, Bennett's Hill; T. Denny, 52, Southwark-street.

THE ENGLISH LAND AND INVESTMENT COMPANY (Limited).—Capital 50,000*l.*, in shares of 10*l.* To buy, sell, let, lease, build on, mortgage, or otherwise deal in land of any description in the United Kingdom and elsewhere. The subscribers are—R. Kersey, Lewisham, 21; A. Bishop, Highbury New Park, 21; C. M. Shepherd, 5, Winchester-terrace, Tottenham, clerk. The directors shall be Messrs. Carr, Bayter, Hutchinson, and Kitching. Qualification 100 shares; remuneration 250*l.*, when 10 per cent is earned, 375*l.*, to be further increased to 500*l.* if the dividends equal or exceed 20 per cent.

THE COLOMBIAN HYDRAULIC MINING COMPANY (Limited).—Capital 75,000*l.*, in shares of 1*l.* fully paid up. To purchase the property and assets of the Malpaso Gold Washing Company (Limited), the Rica Gold Washing Company (Limited), and the Malabar Gold Washing Company (Limited), in the State of Tolima, United States of Colombia. To work, raise, purchase, dress, and prepare for market any ores, metals, precious stones, or minerals, and to sell, traffic, and deal in the same. To purchase or work any other mines or land in the United States of Colombia or elsewhere, also such plant and machinery as may be necessary to carry out the effective working of the mines. The subscribers (who take one share each) are—W. W. Holmes, 35, Finsbury-circus, accountant; A. Cobbett, Mitcham, no occupation; C. O. Rogers, 1, Winchester House, merchant; C. Hopkinson, Paul's Wharf, merchant; J. A. Cobbett, 53a, Old Broad-street, accountant; F. R. Wilson, 30, Finsbury-circus, secretary; J. T. Pechey, 59, Mark-lane. The first directors shall be Messrs. A. Cobbett, Pechey, Rogers, and Hopkinson. Qualification, 200 shares. Remuneration, 300*l.* and a percentage on all dividends paid.

THE BRYN-YR-AFR MINING COMPANY (Limited).—Capital 8000*l.*, in shares of 10*l.* The purchase and acquisition of mines of lead and other minerals in Cardiganshire and elsewhere, and acquiring, by lease, purchase, or otherwise, lands, buildings, &c., in England and Wales, and selling or disposing of same; also the working of the said mines and minerals, and the smelting and refining or otherwise dressing ores or minerals, &c. The subscribers (who take one share each) are—T. Wilson, Liverpool, oil merchant; J. B. Smith, Saforth, gentleman; J. B. Williams, Gateshead, coal agent; W. H. Wilson, Windbourne, oil merchant; J. Colart, St. Michael's Hamlet, rope manufacturer; J. T. Bench, Liverpool, merchant; T. Goffey, Liverpool, solicitor. The first directors shall be Messrs. Wilson, Goffey, and Goffey; qualification, 50 shares.

LONDON MERCANTILE ASSOCIATION (Limited).—Capital 50,000*l.*, in shares of 100*l.* To carry on a mercantile banking and financial business, both as principals and as agents. The subscribers (who take one share each) are—E. J. Dowden, 13, Winchester-street; R. Baldwin, 1, Approach-road; A. E. Walton, Birmingham; H. C. Richardson, 6, Park-lane; T. E. Briggs, Stratford; J. D. Oates, Waltham-street; A. C. Briggs, 20, St. George's-square.

WILLIAM CAY AND PARTNERS (Limited).—Capital 50,000*l.*, in shares of 100*l.* To carry on the business of shipowners, and the purchasing, selling, and navigating ships and vessels for the conveyance of passengers and goods. The subscribers (who take five shares each) are—W. Cay, South Shields; S. H. Maser, Newcastle; J. T. Hedley, South Shields; G. E. Henderson, South Shields; C. Dyble, North Shields; J. Malcolm, South Shields; M. Cay, South Shields.

THE GLOBE ACCIDENT ASSURANCE COMPANY (Limited).—Capital 10,000*l.*, in shares of 1*l.* To carry on in England and elsewhere the business of an accident assurance and guarantee company in all their branches. The subscribers (who take one share each) are—C. J. D'Oyley Mears, Ilford; J. T. Simnett, Manchester; R. S. Gutteridge, Manchester; T. E. D. Plum, Mansion House Buildings; F. Henderson, 16, Clarendon-street; W. Hesketh, Birkenhead; T. Lancaster, Bootle.

GEORGE REDFORD AND COMPANY (Limited).—Capital 10,000*l.*, in shares of 10*l.* To acquire by purchase the property until lately belonging to G. Redford at Tycoch, Carmarthen, including the cement works thereon, with all plant, machinery, &c., also a certain patent called "Conniff's Patent." To carry on the said works as manufacturers of bricks, cement, stone, &c., and sell the same. The subscribers (who take one share each) are—H. Imart, Kidwelly; R. H. Davids, Kidwelly; E. Turell, Ferryside; R. Morris, Kidwelly; D. Anthony, Kidwelly; E. Lewis, Kidwelly; and D. Griffiths, Kidwelly.

THE STANDARD FIRE OFFICE (Limited).—Capital, 1,000,000*l.*, in shares of 1*l.* To purchase or otherwise acquire and undertake the property and liabilities of the Belfast Fire Insurance Company (Limited), and the Standard Fire Office (Limited), or either of them, and to carry on in the United Kingdom or elsewhere the business of fire insurance in all its branches. The subscribers (who take one share each) are—J. Henry, Belfast; J. M. Moreland, Belfast; A. Lemon, Belfast; G. Raphael, Ballymena; J. Herdman, Strabane;

Mining Correspondence.

BRITISH MINES.

ABERLLYN.—J. Roberts, April 16: There is no change to notice in the underground department since last week. The end in No. 2 adit is let to drive to four men, at 1*l.* per fathom, and the lode to cut through behind this end at 1*l.* per fathom. The lode to cut through in the bottom of this level, by two men, at 7*l.* per fathom. We have commenced clearing the level at the deep adit on the shale; we expect that by a continuation of this level we shall get into lead ground, and it will give us the advantage of cutting through the blend-lode in the run of blonde ground, where we have reason to believe that the blonde is replaced by the lead. We have got the jiggers to work to-day, and I hope that we shall be able to try the crusher on Friday. We are now getting full of blendstuff everywhere, both in the mine and outside, and have not much room to put any more till we commence crushing.

BEDFORD UNITED.—R. Goldsworthy, April 10: The lode in the 158 east is worth 9*l.* per fathom. In the 133 east the lode is much improved, being now worth 8*l.* per fathom. The lode in the 127 east is a fine promising lode, worth 12*l.* per fathom. The stope are without alteration, and yielding on an average 7*l.* 1*l.* per fathom.

BETWS Y COED.—H. T. Haley, April 13: The lode in the deep adit east of cross cut is looking well, and producing fine stones of solid lead, but the ground is not in a settled state, being just at the point of the horse of ground. The lode in the winze from the shallow adit is worth fully as much as last week. There is no change to notice in the 20 end since my last. We shall start the engine on Saturday, leaving the rods and connections, &c., complete.

BLAEN CAELAN UNPRED.—Jonathan Pelt, April 17: The 30 driving east from the bottom of the engine-shaft is extended 3*l* fathoms; the lode in the level is hard, intermixed with a good deal of carbonate of lime and spar, with both lead and copper interspersed. Last week and the early part of this week no progress could be made out of doors with dressing—heavy snow and frost at night; it has not, however, affected our pumping, and all is going on well.

BLUE HILLS.—S. Bennett, P. Vian, April 12: There has been no lode broken in the 30 east end since last reported on. The stope in the back of this level are worth respectively 10*l.* and 12*l.* per fathom. We are daily expecting to hole the B Burrow shaft with this 30 end; the ground being very nearly wrought.

BODIDRIS.—H. Hotchkiss, April 17: Maes-y-Pwll Lode: The ore in the roof of present working presents much the same appearance, and we are breaking herefrom some fair stuff for the dressing-floors, and the lode looks very promising, and the ore-bearing part is about 3*l* wide. We shall have another stope drawing of ore-stuff to land on Monday or Tuesday next, when I believe it will be a better sample than the other. The lode in the 45 end is becoming more loose, with a good quantity of spar in the lode, and some lead ore and blonde—kindly looking lode, and is going still in the same direction. The ground at the engine-shaft still keeps hard, but we have more spar mixed throughout; this means, I think, a change near at hand, and I am anxiously watching for it. I will write again to-morrow or Saturday, when I hope to have still better news with respect to the Maes-y-Pwll lode; but I may say I have the greatest confidence in its durability, and it is spoken of in the neighbourhood as a discovery likely to last.

CAMBRIAN MINES.—Thomas Glanville, April 12: ESGAIR FRAITH: Eastern Shaft: In the shaft sinking below the 70 yard level the copper part of the lode is yielding 2 tons per yard. In the 70 yard level, east of shaft, we are driving on the soft part of the lode by the side of the copper, which will enable us to take it away with less expense. The lode in the 70 yard level, west of shaft, is producing some good stones of copper ore, but not in sufficient quantities to value. The stope above the 70 yard level will yield 2 tons of copper or ore per yard. The 46 yard level, west of shaft, will produce 1 ton of lead ore per yard. We are still crossing out at Esgair-Hir.

CLEMENTINA.—J. Roberts, W. Sandoe, April 16: All the segments of the large water wheel are put in, and the buckets, &c., are being put in, and we hope that in two or three weeks the wheel will be completed. All other parts of the work are being pushed on as fast as possible.

COMB MARTIN.—T. Comer, April 17: We have no change of any importance in the different points of operation in the mine to report to-day. Saturday next being our setting-day, we will send you a full report for next week.

DE BROKE.—J. Phillips, April 16: The 55, driving east of Wilson's shaft, is somewhat harder; the lode is producing a little lead ore, mixed with copper. The stope in the 25 east continues to yield good ore, and the other stope are also keeping up to their average produce. The tributaries have retained their pitch under adit at 5*l.* per ton. The crushing and other machinery is in good order, but two or three days' frost has delayed the ore-dressing.

DENBIGHSHIRE CONSOLIDATED.—A. Francis, April 17: Since our last report the 112 east has been driven 2 yards 1*l* ft., and should the important improvement now taking place in the lode continue we ought soon to be in a good course of lead ore. In our 112 west level, which has been extended since our last report 3 yards 2*l* ft., we have, as we expected, intersected another lode. As the influence of the powerful vein we have been driving upon naturally affects the settled ground. So far as we have gone the indications are very promising, small lumps of lead being obtained in the driving. In our workings at the 66 lode at the 50 there is no change to notice since our last report. We are busy fixing the new winding-engine, which will, we believe, answer its purpose admirably. There are good piles of lead ore on surface.

DERESBY CONSOLS.—J. Roberts, W. Sandoe, April 16: The end driving towards Cobbler's lode is set to six men, at 9*l.* per fathom, for the month. The lode on which we are driving is now nearly upright, and rather smaller than it has been for the past week or two. The character of the ground is without alteration.

DERESBY MOUNTAIN.—J. Roberts, W. Sandoe, April 16: The No. 1 is set to four men, at 8*l.* per fathom; the lode is rather smaller but is still very wet, and contains strong patches of lead and blonde, still a kindly lode. The No. 2 end is set to two men, at 7*l.* per fathom. There is a good change in both the odes and country rock. A foot in width of the lode produces good blonde, mixed with good lead, and is likely to improve. This is bearing out what we said about it some weeks ago—that we fully believed that the lode would become productive no great distance of driving, or as soon as we got into settled ground. We are expecting every day to hole the winze at this level to the rise in No. 3. There is now no change in either. We have set the rise to two men, at 15*l.* per fathom. At the 40 shaft we shall to day make everything ready to start winding from the bottom with the steam-engine to-morrow morning. We have 2 fms. to sink this shaft to reach the No. 5 adit, and that level is cleared and secured to within 21 fms. of the shaft, and if we can command the same speed in clearing No. 5 for the next month as we have done in the month past we shall effect a communication. All our surface work is going on with regularity.

DEVON GREAT CONSOLS.—I. Richards, April 17: Wheal Emma: Inclined Shaft: In the 137 east, west of Friend's cross-cut, driving is being continued by the side of the lode, the ground being favourable for progress. In the 47 west the lode is 5*l* wide, and worth 5 tons of copper ore, or 1*l*., and 3 tons of mudiue per fathom. New Shaft: New South Lode: In the cross-cut south at the 205 the lode has been cut into about 5*l* ft., and is composed of capel, quartz, fuan, prian, and small quantities of mundic and copper ore. In the 190 east the lode part being carried 4*l* ft. wide, is composed of capel, quartz, prian, and copper ore; worth 3 tons, or 8*l.*, and 5 tons of mundic per fathom. In Knott's winze in bottom of the 190 east the lode part carrying 6*l* ft. wide, is worth for length of winze (9*l* ft.) 5 tons of copper ore, or 15*l.*, and 8 tons of mundic per fathom. In the 190 west the lode part being carried 4*l* ft. wide, is composed of capel, quartz, prian, and good stones of copper ore, and 4 tons of mundic per fathom. In Floyd's winze in the bottom of the 175 east the lode is worth for length of winze (9*l* ft.) 6 tons of copper ore, or 18*l.*, and 4 tons of mundic per fathom. In the 175 west the lode is worth 10 tons of copper ore, or 30*l.*, and 4 tons of mundic per fathom. In Hockaday's rise in the back of the 175 west the lode is worth for length of rise (9*l* ft.) 4 tons of copper ore, or 12*l.*, and 3 tons of mundic per fathom. In Doney's winze in the bottom of the 190 east sinking is being continued by side of the lode. In the Railway shaft, which is now down about 11*l* fms. below the 190, the lode part carrying 1*l* ft. wide, is worth for length of shaft (10*l* ft.) 4 tons of copper ore, or 12*l.*, and 2 tons of mundic per fathom.

ESTATE CRAVEN MOOR.—David Williams, April 10: The vein in the 51, east of new shaft, is steadily improving, being at present 3*l* wide, composed chiefly of limespar and gosan, and producing saving work for dressing. A rise behind the end is in a vein 6*l* ft. wide, worth 4 tons of lead ore per fathom. The 54 west is worth 1 ton of lead ore per fathom. In the 30 west the vein is 2*l* ft. wide, and producing occasional stones of ore. In the cross-cut south from the 42, west of shaft, the ground is hard and spare for driving. In the 56 west, upon Hardgate end vein, the ground is easier to work, and better progress is being made. We have in the bin 32 tons of clean ore. I hope to have shortly a parcel of 50 tons ready for smelting.

EAST ROMAN GRAVELS.—A. Waters, April 17: We have the pumps ready on the mine for fixing at the 86 or bottom level, and we begin to-morrow to cut ground for fork, &c., preparatory to deepening the bottom engine-shaft for another level. The lode in the 86, south of shaft, is 4*l* ft. wide, worth 1*l* ton of lead ore per fathom. No. 1 pitch, in the 75 south is worth 1*l* ton per fathom. The lode in the 63 south is worth 12*l* tons per fathom. The pitch in the bottom of the 50 north is worth 1 ton per fathom. The pitch in the back of the 40 north is worth 1*l* ton per fathom. The pitch in the 35 north is worth 1*l* ton per fathom. The pitch in the bottom of the 20 south is worth 12*l* tons per fathom. The pitch in the back of the 6 south is worth 1*l* ton per fathom. There are nine pitches altogether at work by 24 men, at an average tribute of 4*l* 1*l* 8*l* per ton, tributaries paying all cost, including 2*l* 8*l* per ton for dressing. We have to-day sold 30 tons of lead ore for 27*l* 10*l*.

GAWTON COPPER.—George Rowe, George Rowe, jun., April 12

whilst the vein is widening as we proceed; I expect a further and great improvement in this end very quickly. In the 70 driving west the men have driven 3 yards 6 inches since the last report; there is strong blonde mixed with the lode stuff, and I think this end after a little further driving will open out well for lead ore. There is no change to notice in any of the tribute pitches, which are producing the usual quantities of lead ore. We have not been able to do much in the driving of the 90 east in consequence of the hardness of the ground, but before our next report I hope to be able to announce pleasing intelligence with regard to this. We have drawn to surface some very rich lead during the last fortnight, and our prospects are very good indeed.

GREAT HOLWAY.—April 17: Considering the rough weather we have made very good progress in the erection of the machinery since our last report. The remaining portions of the plant, &c., including the steam-captain, have all arrived per steamer, and the unloading nearly complete. The boilers are being rapidly fixed, and with a few weeks of fine weather the surface arrangements will be nearly complete. At Garden shaft the men engaged both in the eastern and western ends are in full work opening up the ground for extensive future operations, and we have been raising therefrom splendid lead ore.

GREEN HURTH.—William Vipond, April 11: The end south on No. 1 cross vein in the 30 continues to yield from 12 to 14 tons of ore per fathom, and there has been no material change in it during the week. There is still the same mass of ore going down in the bottom. The north end is yielding 6 tons per fathom, with better ore still going down in the sole of this. We have no checks in either end, but splendid ore on the west side of north end. Out of the width of our present driving we shall commence with cutting out for the new sump top on Monday. As soon as we get a clear start I shall put as many men to this as can work at it. We have another wagon of ore ready for delivery, but it will be Monday before it is at Alston, as Good Friday is a general holiday here. The new sump will go down on the north side of the bottom of incline, and on the west side of No. 1 cross vein.

HERDOSFOOT.—P. Temby, April 17: The lode in the 205 south is worth 1 ton of lead ore per fathom. Within the past fortnight the lode has been very changeable, and the ground has become better for driving. No. 1 stope, over this level, is worth 15 cts. of lead ore per fathom; No. 2 stope is worth 12 cts. of lead ore per fathom; No. 3 is worth 18 cts. of lead ore per fathom. The lodes in the 190 north 5 ft. wide, and worth 6 cts. of ore per fathom, and letting out a great deal of water. The lode in the rise over the 175 for the new shaft is poor; here the men are making good progress. In the rise over the 160 the lode has made a splice, and is again improving, now worth 1 ton of rich ore per fathom; here we are opening up some good stopping ground. We have three pairs of timber at work, and are making good wages; others are daily marching up new pitches. At surface we are busy preparing for our first sampling on Monday next.

HINGSTON DOWN.—Thomas Richards, April 9: The tribute ground in the back of the 120 and 110 continue to produce the usual quantities of ore. The lode in the back of the 45 and bottom of the 35 is producing 3 tons of good ore, or 18 cts. per fathom. The branches in the deep adit are not yet united; they are now about 2 ft. apart, going on nearly parallel, both producing rich stones of ore. It is intended next month to open further westward on these branches, and extend the level southward also.

—Thomas Richards, April 16: The tribute pitches in the back of the 120 and 110 are producing on an average about 10 cts. worth of ore per fathom. The lode in the back of the 45, on the western part of the mine, is a good course of ore, worth 3 1/2 tons, or 20 cts. per fathom. In the deep adit driving west the lode is becoming more defined, and is principally composed of capel and quartz for about 2 ft. wide, which are producing some rich stones of ore, and is very promising. The ground in the deep adit cross cut south, being driven for intersection of the other lodes, is favourable.

LADYWELL.—Arthur Waters, April 17: The new south shaft is 11 1/2 fms. below the 15; ground still hard. The 32 driving south of Webster's winze, south of the above shaft, is now forth to sparly lode; but we have not yet reached the ore-ground seen in the 16 south; shall get into this, I expect, some time next week. The lode in the 16 fm. level forebreast is at present very narrow, the sparly course having twiched up to a mere joint. The lode will no doubt widen out again as we go forward. The stope in the back of this level behind the end is worth 1 ton per fathom. Along the bottoms for 12 to 15 fms. in length the ore-course is worth 1 to 2 tons per fathom, and we hope to be able to work this ground from the 32 south of Webster's winze directly. The tribute pitches are rather poor. We have to day sent out samples of 20 tons of lead ore for sale next week.

LEADHILLS.—Arthur Waters, April 17: Monthly Report: Brow Veln: The tribute pitch in the back of the 20, south of Glengonar shaft, is working by three men, at 90s. per ton, worth 25 cts. of lead ore per fathom. Gripp's adit, north of shaft, is into a change of ground, and the lode is again yielding stones of ore, and improving as we go forward. The stope in the back of the 24 north is worth 22 cts. of lead ore per fathom. The tribute pitch in the roof of Pout shied by three men, at 90s. per fathom. —Hopeful Veln: The pitch in back of Gripp's adit, south of Muir's cross-cut, by two men, at 90s. per ton. —East Stay Voyage Veln: Gripp's adit cross cut by two men, at 90s. per ton. —West Stay Voyage Veln: The pitch in bottom of Poutshill level, by four men, at 90s. per ton, worth 25 cts. of lead ore per fathom. The pitch in back of the 24 south by two men, at 90s. per ton. The pitch in back of the 20 south by four men, at 90s. per ton. —Katrine Veln: The pitch in back of Gripp's adit, south of Muir's cross-cut, by two men, at 90s. per ton. —Fulley's Veln: Gripp's adit cross cut by two men, at 90s. per ton. —Fulley's Veln: The pitch in bottom of Poutshill level, by four men, at 90s. per ton. —Fulley's Veln: The pitch in back of the 24 south by two men, at 90s. per ton. —Fulley's Veln: The pitch in back of the 20 south of shaft, by four men, at 90s. per ton. Fulley's Veln, while the 10 south, going down in front of the said 20 end, is opening out a lode worth 3 1/2 tons per fathom. This winze will be down in time for the coming up of the 20, and when the two points are held we shall have a rich section of ore-ground available for returns. Gripp's adit, south of the above point, is into another run of ore-ground, the present value of the lode being 1 ton per fathom, and improving.

Raik Veln: The winze below the 20, south of No. 2 winze, south of Reid's shaft, is yielding stones of ore, and is being pushed as a trial point. A pitch in the back of the 20, south of ditto, by four men, at 90s. per ton. A pitch in the same level, north of No. 1 winze, by four men, at 90s. per ton. A pitch in the roof of Gripp's, south of Reid's, by four men, at 90s. per ton. A pitch south of ditto, by two men, at 90s. per ton. A pitch south of ditto, by two men, at 90s. per ton. A pitch south of ditto, by four men, at 90s. per ton. —Watson's shaft: This shaft is now communicating by a cross cut to Gripp's adit, south of Reid's, and we are now extending Watson's cross cut, west of Highwork vein, towards old Raik vein and mine proper; 5 fathoms should put us into, if not under, the old men's stope on Raik vein. —Jeffrey's Veln: Gripp's adit, north-west on the above lode, is still without ore to value; we should get under the old men's workings here in the next 10 to 15 fathoms further driving. A pitch in the back of this level, by two men, at 90s. per ton, worth 2 1/2 tons per fathom. —Mill Veln: A pitch below Gripp's, north of Marr's shaft, by four men, at 90s. per ton. —Carse's Veln: A pitch in bottom of Gripp's, south of Moss shaft, by four men, at 90s. per ton. The weather is now favourable for dressing operations, and the stocks of ore will be made available for market without delay.

MINERAL CORPORATION OF GREAT BRITAIN.—William Bennett, April 16: HAFNA AND HIGH HAFNA MINES: The lode in No. 3 adit end is still looking well for lead and blonde ores; considering the large pieces of mine at this level, this end has been driven through, and nothing having been done below this level, I would strongly recommend the driving of No. 4 level with all possible dispatch, as I am certain that by so doing we shall open up a splendid mine at this level. At surface everything is progressing satisfactorily, and if the weather continues as fine as it is at present the embankments of the reservoir will be completed by the time specified in my last report.

GREAT D'ERESBY MINE.—Everything is in readiness here to receive the engine, which I am daily expecting.

BRYN CANADON MINE.—We have commenced to sink a winze in the bottom of the adit level, and I am pleased to say that the lode is looking well, better than I expected to see it, being so near the surface.

MONYDD GORDDU.—James G. Green, April 18: I have pleasure in informing you that the 12 west has improved; the forebreast to-day shows a capital mixture of lead and blonde, worth of the former 12 cts. per fathom. There is no other material change to notice at any other point underground since I wrote you last. Dressing is being pushed forward as much as possible, but the water is getting short to do fully duty.

MORFA DU.—T. Mitchell, May 16: We have no change calling for any special remarks this week, and everything continues to go on in the usual regular order. We have brought home the boiler all right.

NANT-Y-MWCH.—Abelom Francis, April 16: We have taken out the collar of the engine-shaft, and replaced in it a new and stronger one, making it a firm and lasting job. We have also put our machinery in readiness for pumping and resuming operations when ordered to do so.

NEW BROLLOYD.—Thomas Kemp, April 16: Middle Lode: The north part of the lode carried in driving the 73 end west of Curtis's cross cut I am pleased to say is presenting a much better appearance than for some time, being composed of killas and spar, containing more lead ore, and a much stronger feed of water is lessening from the breast, which I consider to be favourable indications for good results. The lode in the 53 end, east of No. 2 shaft, is without any change to notice since last report, and the same remarks will apply to the winze which is being sunk on the north part of the lode, in the bottom of this level. Owing to the dry weather our surface water for the present is very limited, consequently hauling and dressing are somewhat impeded. However, I propose sampling 20 tons of silver-lead ore next week. Machinery in good order.

NORTH D'ERESBY.—W. Bennett, April 16: The lode in No. 2 adit end is to-day 4 ft. wide, with a good mixture of lead throughout. All the stuff that comes from the end is good saving work for the dressing floors.

—April 17: No. 2 Adit: The lode maintains its size and character, being full 4 ft. wide, producing good lead that will pay well.

PANDORA.—H. Nottingham, April 19: We have been hindered in our bottom levels this week through one of the cog-wheels of the pumping gear of the engine coming loose. We have it keyed on again, and started to work. We have had the wheel pumping for the last two days; in consequence of this we have done little but live in these levels since my last. The only change is an improvement in the 33 end south on Goddard's lode, which is becoming productive again, and I look for further improvement here. We shall break some good lead when we resume work in the 33 rise south on new lode. In the meantime these men are stoking in a part of the No. 2 over 23 south, and driving 23 south on new lode. The 23 end south, on new lode, shows signs of improvement by yielding a little lead along with the blonde. No. 2 stope, over this level, is worth 1 ton of lead and 15 cts. of blonde to a fathom. The 23 end going north, on Goddard's lode, is now into a kindly-looking lode of Illespar and grit, with a little lead and blonde intermixed, but not enough to value. No. 1 winze, south of shaft cross-cut, has fallen off in value, worth now 15 cts. of blonde and a little lead per fathom. No. 2 winze is now chiefly productive of blonde, but is likely to improve again shortly. Dressing is being carried on regularly, and we have a fair amount of stuff to work upon, which we are getting chiefly from No. 2 stope;

but I hope to have some good stuff from the bottom next week in addition to this. We resume work in bottom to-night.

PANDORA.—H. Nottingham, April 17: Since my last report we have not been able to do much in the bottom levels, through having had to stop the engine several times with the feed pump out of order, but I think we have now remedied this, and trust we shall not have the same hindrances again. The 33 drivings are thus without change calling for remark. The men have been stoking and sending up stuff from No. 2, over the 23 south, when not able to go to the bottom. This stope is still worth from 18 to 20 cts. of lead and 15 tons of blonde to a fathom. The 23, driving south on new lode, is looking promising, yielding a little lead and blonde, but not enough to value. Goddard's Lode: The 23, driving north of shaft cross cut, has improved appearance, but is not yielding ore to value. No. 1 winze, sinking south of shaft cross cut, is yielding blonde and a little lead, with ground close and sparly for sinking. No. 2 winze is also rather poor at present, but we expect to see the lode open and become productive again as we go deeper. Dressing and surface work going on satisfactorily, and machinery in good working order.

PARYS MOUNTAIN.—T. Mitchell, April 16: The ground in the 90 south continues hard, which is just what we expected about this place. The 90, east of the cross cut, is still producing a little copper ore, and looks promising as we advance in this direction. The water coming out of the forebreast is very strong for copper. We have commenced cleaning up the precipitation pits.

PATELEY BRIDGE.—C. Williams, April 17: The Rake vein, in the 30 east, maintains its former value—15 cts. of lead ore per fathom—and is very promising. The north-west end on Fielding's vein, in 30, is looking exceedingly promising, and producing some fine solid lead ore; and we shall have a good piece of stoking ground laid open here soon, which can be taken away at a good profit. The Lump vein, in 20 west, is 8 ft. wide, and worth from 20 to 25 cts. of lead ore per fathom. Fielding's vein, in 20 north-west, is 3 ft. wide, and worth 18 cts. of lead ore per fathom. The tribute pitches are producing lead ore as for some time past. The erection of the new machinery is proceeding favourably as the nature of the work will admit.

PENHALLS.—S. Bennett, F. Vian, April 12: The only change to notice in the rise in the back of the 70 east end is the intersection of a small gossan, the top node not being yet cut. The lode in the winze below the 20, at Flat rod shaft, is producing a small quantity of tinstaff, and the same lode in a winze below the 20 further east is also yielding some low quality stuff. This lode has produced some good broaches of tin near those points, and we hope to see an improvement here shortly.

PENNANT.—April 17: The stope in the roof of the 40 east, on the south lode, continues to yield lead ore in satisfactory quantities. In the driving east at the 40 the lode maintains its character, and is gaining strength as we advance on its course. We have a great extent of unworked ground in this direction, so that it is satisfactory to know the present composition of the lode. We have a nice pile of lead on the floors.

PRINCE OF WALES.—John Andrews, April 16: There is no change in the tribute pitches, which are looking much the same as for several weeks past.

ROMAN GRAVELS.—Arthur Waters, April 17: The 110, north of new shaft, is worth 2 tons of lead ore per fathom. A rise in the back of this level is also worth 2 tons per fathom. The 110, south of shaft, is worth 1 ton per fathom. The 95 south is worth 3 tons per fathom. The 80 south is worth 1 ton per fathom. A winze in this level going down on the hanging-wall part of the lode is sunk 6 fms.; lode worth 1 1/2 ton per fathom. The 80, north of old shaft cross-cut is worth 1 ton per fathom. The 65 south is worth 3 tons per fathom. A winze below this level, north of old shaft cross-cut, is worth 2 1/2 tons per fathom. No change in the 40 south since last reported on. The stope are yielding the usual quantities of lead ore. We sold 200 tons of lead ore on Saturday last for 1873.15.

ROOKHOPE.—Thos. Tonkin, April 17: Adit Level: At the forebreast in side vein the ground is now very hard, and progress slow but the ore-producing qualities of the vein are the same as last reported—21 cts. to the fathom. In the stope near Gin shaft we are getting a little ore, and the ground improves, now worth 8 cts. to the fathom. In the 15, in the drivings east and west on side vein from the cross cut near Low shaft, the ground remains moderately easy, and is worth for ore on the average 8 cts. to the fathom, and it continues to yield us some white ore (carbonate of lead). The stope near Gin shaft, above this level, is worth 1 ton per fathom. In the 25 we are pushing forward the rise on the side vein to communicate with the 15, and so open up stope between these two points, as the ore-bearing nature of the ground fully warrants; the ground is fairly easy, and the rise produces some ore; in two or three weeks the work will be completed. In the drivage beneath this level we are getting some good ore both above and below a flat or bed; the ground is now worth 20 cts. to the fathom; this, too, is on the side vein unexplored in former times. At the pumping the ground is not so hard, and yields 9 cts. of ore to the fathom; this is on the main leader or vein. In the 42 we are stoking some ground near Gin shaft, worth 8 cts. to the fathom, and which I hope will improve as we get into a different soil. There is also some ore in the rise near Low shaft; these are on the contral or main leader. The ground in the heading at stope, side vein, near Low shaft, has not changed since last reported on.—Dressing Operations: Our crushers and classifiers are new in good working order, and we are getting into a better position both on surface and underground, notwithstanding the tempestuous weather and depression of the times.

SOUTH DARREN.—Henry James, April 17: The shaft is being sunk with satisfactory speed. There is no change in the lode since last week. The 10, east and west from winze, is in fork, and the driving of both ends resumed—east by six men, at 11 1/2 per fathom, lode worth 16 cts. per fathom; and west by four men, at 11 1/2 per fathom, lode worth 35 cts. per fathom. Owing to the scarcity of water for the drawing wheel, we are unable yet to clear the accumulated stuff in the 100 west from shaft, but we are making every effort to clear it as soon as possible, when the driving of the end will be resumed. We are in course of stripping down the lode in the 90, end, and it is looking well, worth 35 cts. per fathom. No. 1 stope in back of the 90 is very wide, and worth for its width 30 cts. per fathom. No. 2 stope has fallen off a little in value, worth 18 cts. per fathom. No. 3 stope is worth 12 cts. per fathom. No. 2 stope is almost worked to poor ground; present value, 7 cts. per fathom. Owing to the little supply of water this week we have been unable to carry on the drawing and dressing by night with satisfaction; however, every energy is put forth to make the best of it.

SOUTH MOLTON CONSOLS.—T. Harris, T. May, April 17: The ground in the adit cross cut continues much of the same character as when last reported, still being stiff blue killas, but we are hoping we shall soon get through this run into an easier channel of ground quickly.

SOUTH TOLCARNE.—William Rich, James Knotwell, April 11: We have intersected two branches in the 36 cross cut north; these branches will drop into the main lode in depth probably in 10 or 12 fathoms deeper. The ground in the cross cut since we passed these branches is hard; we have, therefore, suspended the cross cut, and put the men to continue the rise above the 36 on the course of the lode. The lode in the 36 end east is about 3 feet wide, of a very kindly appearance, and letting out more water than usual.

TANKERVILLE.—Arthur Waters, April 17: Watson's engine-shaft will be deep enough for the 230 by the end of next week, after which time we shall commence cutting ground for plat and push forward a cross cut to the great lode and out a moment's delay. We all feel sanguine about cutting into a strong, wet, ore-lode, and what I saw in the end to-day I am inclined to think a large cavity and the commencement of the western run of ground are near at hand. The 206, east of shaft, now driven about 20 fms., is opening out a strong, wet, ore-lode; worth 1 1/2 to 2 tons per fathom. There is a prospect of a cavity in this fore-rear too shortly. The stope in the back of this is worth together 7 tons per fathom. The 182 east is of strong character, and worth 3/4 ton per fathom. Other points and tribute pitches as for some time past. We have to day sold 80 tons of No. 1, and 20 tons of No. 2 quality ore, for 900.

THE PENSTRUTHAL MINING DISTRICT.—Who can recognise mining enterprise as existing in the Penstruthal district in the palmy days of Tresavean, Old and New Buller, Wheal Beauchamp, Comfort, Trethellan, and Treviske, with the sloth and inactivity which pervade and cripple this industry at the present time. Tresavean, on each 32.10s. share, yielded dividends of 100% bi-monthly; rarely did a share exchange hands so long as the pioneer points continued their promise of discoveries; and well were the shareholders repaid for their perseverance and unwavering pluck, for each share received in the aggregate over 4000, in dividends. This mine stands to the east of Penstruthal. What would the late eminent and purely practical miner, Capt. Thomas Teague—the pioneer of Tresavean, Wheal Buller, Timroft, North Downs, and other prosperous concerns—say now, where he permitted to revisit the arena of his former prowess and enterprise—at the simple trafficking in buying and selling shares for settlement on account days, instead of grappling with the veins and laying open the vast though hidden stores of the earth, as practised by him and his successors of course over the decade 1827 to 1837, that witnessed the creation of that spirit which ushered into existence Carn Brea, Tolgus, North and West Bassett, Crofty, North Roskar, Buller, Levant, Botallack, Par, Phoenix, Fowey, and the Devou Great Consols. Surely the "shades" of such miners as old Teague, Lyle, Treffry, Harvey, Halse, and Tredinnick must stand aghast at the sight of such apathy and indifference as one sees now displayed. At Penstruthal the late Mr. Francis Daniel extracted from one vein alone more than half a million, in high percentage copper ore, with a profit of 80,000/- in one year. Tresavean from its advanced to 2700/- a share, Bassett from 5/- to 200/- a share, and the surrender of Buller set rather than work it; yet, subsequently, it was taken up by others, and shares of 1/- were advanced to 1000/- each. Again, shares in Storn, Crofty, and South Francis were revalued—indeed as worthless just previously to success, and yet the shares rapidly rose to 800/-, 1000/-, and 750/- each, with a preponderance of buyers. —West Briton.

WEST WHEAL PEE

** With this week's Journal a SUPPLEMENTAL SHEET is given, which contains—Original Correspondence: Raising Sand from China clay (T. F. Pagan); Mining Prospects on the Pacific Coast; Colorado United Mining Company; Reducing Sulphides without Fuel (J. Holloway); Holloway's Process for Utilisation of Sulphides as Fuel (H. B. Condy); Lighting Collieries (J. D. Shakespeare); Colliery Management; New Safety Fuse for Mining; Schmitt's Revolving Spiral Screen; Hauling Corves and Tubs; Cleveland Steel; Schram's Direct-Acting Air Compressor; Is it Right to Pay any Purchase Money for Mines? (W. Salmon); Panhandle Mine; Cambrian Mining Company; Cardiganshire Mines—the Camorian, &c. (A. Francis)—Meetings of public companies: Sierra Buttes, London and California, and Parys Mountain.

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The Mining Market: Prices of Metals, Ores, &c.

METAL MARKET—LONDON, APRIL 18, 1879.

IRON.	£ s. d.	£ s. d.	TIN.	£ s. d.	£ s. d.
Fig. G.M.B., f.o.b., Clyde.	2 3 0	—	English, Ingot, f.o.b.	69 10 0	70 0 0
Scotch, all No. 1	2 4 0	3 5 0	“ bars	71 0 0	—
Bars, Welsh, f.o.b. Wales	4 15 0	5 0 0	“ refined	72 0 0	—
“ in London	5 2 6	5 5 0	Australian	69 5 0	—
“ Stafford	5 5 0	7 0 0	Banca (nom.)	72 0 0	—
“ in Tyne or Tees	5 5 0	5 10 0	“	69 5 0	—
“ Swedish, London	8 10 0	8 15 0	“	69 5 0	—
Rails, Welsh, at works	4 15 0	—	COPPER.		
Sheets, Staff., in London	7 10 0	7 15 0	Tough cake and Ingot	62 0 0	—
Plates, ship., in London	5 12 6	—	Best selected	62 10 0	—
Hoops, Staff.	6 15 0	7 2 6	Sheets and sheathing	67 0 0	68 0 0
Mail rods, Staff. in Lon.	5 15 0	6 5 0	Fiat Bottoms	70 0 0	—
STEEL.			Wallaroo	64 0 0	64 10 0
English, spring	12 10 0	10 0 0	Burra, or P.C.O.	65 10 0	—
“ cast	30 0 0	40 0 0	Other brands	61 0 0	62 0 0
Swedish, keg.	14 0 0	—	Chill bars, g.o.b.	67 5 0	57 10 0
“ fag. ham.	15 0 0	—	PHOSPHOR BRONZE.		
“ L.EAD.			Bearing metal	£105 0 0	—
English, pig, common	14 7 6	—	Other alloys	£110 0 0	125 0 0
“ L.B.	14 12 6	—	BRASS.		
“ W.B.	15 0 0	—	Wire	7 d. 7½ d.	—
“ sheet and bar.	15 10 0	—	Tubes	7½ d. 7½ d.	—
“ pipe	18 0 0	—	Sheets	8	8½ d.
“ red	17 10 0	—	Yel. met. sheath. & sheets	5½ d. 5½ d.	—
“ white	25 0 0	—	Nails composition	7½ d.	—
“ p. t. shot	18 10 0	—	TIN-PLATES.*	per box.	
Spanish	14 2 6	—	Charcoal, 1st quality	1 1 6. 1 2 0	—
NICKEL.			2nd quality	1 0 0. 1 1 0	—
Metal, per cwt.	18 0 0	20 0 0	Coke, 1st quality	0 17 6. 0 18 6	—
Ore, 10 per cent. per ton	24 0 0	26 0 0	2nd quality	0 18 0. 0 17 0	—
QUICKSILVER.			Black	per ton 18 0 0	18 10 0
Flasks of 75 lbs., ware.	6 2 6	—	Canada, Staff., or Gla.	11 0 0	12 0
SPELTER.			Black Tagger, 450 of	30 0 0	—
Silesian	15 0 0	—	for less for ordinary: 10s. per ton less for quoted above, and add 6s. for each x.		
English, Swansea	16 0 0	—	Terne-plates 2s. per box below tin-plates of similar brands.		

REMARKS.—Business during the past week has been partially checked through the Easter vacation, nevertheless prices have been fairly maintained, and are quoted nearly about the same as they were last week. The holidays this year have probably not been appreciated so much as formerly, for although it has been a relief to obtain a few days recreation from the City at a time like the present when there is so little doing, yet owing to the general depression that exists, and the continuance of cold and unfavourable weather, there can have been but little outdoor enjoyment found for anyone. The unsettled state of the Indian Exchange continues to be one of the greatest impediments to the progress of the shipping trade, as it causes great inconvenience and loss to all Indian merchants, and prevents many orders from being given out that would be executed if the Exchange could be brought to a more satisfactory and reliable figure. It has been the custom now for some time past for Indian importers to send most of their orders over at rupee limits, and, consequently, the rate of exchange must materially affect trade with this country. The future prospects of the metal trade is somewhat doubtful, and greatly depends upon the future production of metals. The market has been suffering for the last few years from over supply, and the consequence is that stocks have reached the highest figures on record, and it is not surprising that the depreciation in value has been enormous, for after every additional increase in stock prices have invariably receded, until they have become not above half what they were previously quoted at. Nevertheless, if future supplies are kept limited, prices may recover to some extent their former position, for the overburdened state of the market is evidently now the chief impediment to the improvement in price, but if stocks could be sensibly reduced sellers would undoubtedly obtain much higher rates for their produce than they are doing at the present time. Naturally these very high stocks cause speculators to hold aloof to a very considerable extent, but whenever any signs of a diminution should take place they will probably again come forward.

COPPER.—At the early part of the week the copper market kept tolerably steady, the advices from Chili showing that war was progressing in that country having chiefly helped towards the maintenance of quotations, whereas the announcement of the Wallaroo sale for next Tuesday, together with the reports from Liverpool showing that during the last fortnight the stock at that port and Swansea had increased over 1000 tons, checked any advance in value taking place. Yesterday, however, the private telegram published in the Daily Telegraph, showing that Peru was seeking to bring about a peaceful settlement with Chili, rather damped the buoyant feeling existing, and sellers showed a greater disposition to realise, but buyers afforded them little or no opportunity of effecting sales of any magnitude. No marked alteration is likely to take place in prices until after the sales Tuesday, when there will be 1070 tons Wallaroo offered, and afterwards a sale of 230 tons of Burra. The importers of Wallaroo engage not to sell for three months, and this interval, being one month longer than usual, may assist in their obtaining a better price than they would otherwise have done. At the same time, the market is too unsettled a condition to ensure very satisfactory sales. The receipt of any serious news from the West Coast during the next few days may, however, help to encourage buyers to bid more freely for the copper, prices being exceedingly low, and thus a good opportunity is afforded for speculation. Consumers should not run too great a risk in leaving themselves bare of stock at the present time, for there is a margin for a considerable rise upon the present reduced rates which might possibly suddenly be effected, owing to the hostilities now existing between Chili and Peru. According to a recent telegram, the Chilian Government is stated to be about to raise an army of 20,000 men, who will have to be mostly drawn from the mines, and the production of copper must, therefore, necessarily be less. So far as this market is concerned, it matters not from what cause the diminished supply may spring, but diminished imports cannot fail to favourably affect price. The statistics of Chilian and Bolivian produce published on the 15th inst. show that the total stock in first and second hands at Liverpool and Swansea amounted on that date to 29,147 tons, against 28,155 tons on March 31. The total stock of Chili copper afloat and chartered amounted to 11,300 tons, against 11,000 tons on April 15, 1878. The total stock of foreign copper, chiefly Australian, in London is estimated at 6860 tons, against 5700 tons on April 15, 1878.

IRON.—Messrs. Bolckow, Vaughan, and Co.'s success in making steel from Cleveland ores has been widely circulated and discussed throughout the trade. The future prospect of the iron trade depends very greatly upon whether the durability of this steel should prove more lasting than that of iron; and there seems at present every probability of its being so; and consequently the trade may expect in the course of a few years the iron trade of this country to have almost entirely died out, and will doubtless be succeeded by the steel trade. The wages dispute continues a serious impediment to this trade throughout the kingdom, and there appears to be barely a district in all the country that has not suffered very considerably through the wages question. But masters are evidently quite unable to pay the men former rates, as prices have been reduced to such a very low figure. At South Wales the reduction is reported at 7 to 10 per cent. The clearances last week have been rather below the average, owing to the holidays. The demand continues limited, and no alteration is reported to have taken place in quotations. It is reported that several of the works at Wolverhampton have been closed for the whole of the week, while others resumed work as early as last Monday. Some masters are fairly employed with old orders, but new ones come forward very slowly. Official quotations keep the same as last, good hematites being bought at 6s., and all mine pigs are strong at 6s. Earl Dudley's bars are sold at 8s. 6d. per ton.

There is very little business being transacted on the market at Leeds, and but few enquiries now come forward for the better descriptions of iron, though sellers make little or no change in their prices. Undisturbed quietude reigns over the market at Birmingham, and sellers have a difficulty in maintaining prices. As in many other districts, the progress of the market at Middlesbrough has been checked considerably by the holidays, and the Durham strike has proved a very serious injury to the trade in this district. Makers, however, have not only been able to maintain their former rate, but have somewhat advanced upon them, which is caused through the lessened indisposition on the part of operators. No. 3 has advanced in value 1s. per ton, and is now quoted at 37s., and merchants are paying 38s. 6d. Forged iron, however, has not advanced, sellers only being able to obtain 35s. net. There is but little business transacted, and makers show no anxiety about the strike, as they believe that as their stocks are so excessively high they will last considerably over the time when the men remain out on strike. It is reported that makers are resolved to lessen their production if the men will not accept the reduction demanded, and in this way it is expected a diminution in stocks will be announced. The manufactured trade keeps dull, and makers are said to be only too eager to prolong their holidays, as they are now only able to obtain little employment for their men.

Prices keep pretty high at a standstill, and makers declare themselves quite

incompetent to accept anything below ruling rates; nevertheless consumers hold aloof, and consequently but few orders are given out. The returns from other producing parts of the country show no change from their predecessors, either in price or the demand. The warrant market at Glasgow opened in rather an irregular manner last Tuesday at 43s. 3d., but during the day receded to 43s., but advanced to 43s. 3d., when another relapse set in, and prices receded to 42s. 10d., but a slight improvement again occurred, and 43s. was paid for cash parcels, and 2d. above this price one month, the present quotation being 43s. per ton.

SHIPS.

For the week ending April 12, 1879 Tons 12,913
For the week ending April 13, 1879 9,441

Increase 3,472
Total increase for 1879 29,058

Imports of Middlesbrough pig-iron into Grangemouth:—

For the week ending April 13, 1878 Tons 6,073
For the week ending April 12, 1879 5,905

Decrease 168
Total decrease for 1879 9,104

FURNACES.

In blast April 12, 1879 88
In blast April 13, 1878 89

TIN.—The market for this metal, though showing no great alteration in prices, has remained tolerably firm all through the week. The demand is very fair, but sellers manifest little eagerness to effect sales, evidently believing that with a little patient waiting they may be enabled to realise a still higher price for their produce. The advance which has already taken place in the value of this metal has enabled many holders to dispose of some of their stock without loss, and in several instances profits have attended their transactions. There are, however, still many who possess large stocks who require the price to still further advance 10% or 20% per ton to enable them to get out without loss. The chief impediment to the progress of this metal like most, if not all, others is the very heavy stock now existing. If producers wish to still further increase their price to any great extent they must allow stocks to considerably diminish, and this may easily be done if their supplies for the next six months or so are kept down, for the deliveries hitherto have been particularly satisfactory, and would soon make a deep impression on stocks if the imports were rather more limited.

QUICKSILVER.—This metal is very firm, and in good demand at 62s. 6d. The Californian combination to curtail the production has not yet been carried through, but the low prices have of themselves diminished the output, the total yield of all the Californian mines during 1878 having been only 62,476 flasks, against 78,600 flasks in 1877.

LEAD.—The little extra disposition which was manifested a few weeks back to make purchases has quite subsided, and the market has again fallen into a dull and monotonous condition, English pig sold at 14s. 7d. 6d. and sheet at 15s. 10s. per ton.

SPELTER.—But a limited amount of business is being transacted in this metal, and sellers are now offering Silesian at 15s. and hard at 11s. 10s. per ton.

TIN-PLATE.—There is no increase in the demand, and the prices of both coke and charcoal remain at last week's figures, though some sellers of the latter have become rather easier in their quotations.

STEEL remains without showing much change, though makers of German are rather easier in their prices.

Messrs. HARRINGTON, HORAN, and Co. (Liverpool, April 15)—Chili copper charters for last half of March were 750 tons bars and 600 tons furnace material for England, with 600 tons bars for the Continent. The charters for the first half of this month are 550 tons bars for England and 50 tons bars for the Continent. A very considerable business has been done in bars since our last report, at prices varying from 56s. 10s. to 60s. 10s., according to the brand, position of the bars, and their destination. A fair business has also been done in furnace material about 2407 tons Chili regulus sold at 11s. 6d. to 11s. 9d.; about 700 tons Spanish precipitate at 11s. 9d. (some portions of it being of low produce) and about 210 tons English precipitate at 11s. 9d. to 12s. per unit. About 1500 tons New Querubia ore of 10 per cent. produce 10s. 6d., and about 390 tons same description of ore of 22 per cent. at 11s. per unit. A public auction sale of 1070 tons Wallaroo copper is announced for the 22nd inst. There is now a good demand for arrival bars stimulated by the idea that the war between Chili, Bolivia, and Peru will accelerate enhanced prices. Imports of Chili copper during the past fortnight 2623 tons fine; delivery, 1621 tons fine. Arrivals here during the fortnight of West Coast, S.A., produce:—Santon, from Valparaiso, 60 tons regulus, 260 tons bars; Blanche Maude, from Valparaiso, 133 tons bars; Galicia, from Valparaiso, 245 tons bars, 120 tons ingots; Bio Bio, from Coquimbo and Caldera, 115 tons bars. At Swansea—Uncas, from Lota, 645 tons bars. Stocks of copper (Chilian and Bolivian) in first and second hand, likely to be taken up, we estimate at—

Ores. Regulus. Bars. Ingots. Barilla.

Liverpool. 1183 22,189 — —

Swansea 1447 6043 3,417 — —

Total. 1447 7229 25,606 —

Representing about 29,147 tons fine copper, against 28,145 tons March 31, 18,692 April 15, 1878; 15,042 tons April 15, 1877; 10,139 tons April 15, 1876; Stock of copper contained in other foreign ore and Spanish precipitate, 900 tons fine.

Stock of Chili copper in Havre, 4289 tons fine, against 9380 tons April 15, 1878; stock of Cora Cora barilla in Havre, 300 tons fine, against 1515 tons April 15, 1878; stock of Chili copper afloat and chartered for to date, 11,300 tons fine, against 11,000 tons April 15, 1878; stock of foreign copper in London, chiefly Australian, 6860 tons fine against 5700 tons April 15, 1878.

Messrs. PIXLEY and ABELL.—GOLD:—The demand for the Continent has almost ceased; the Bank has, therefore, received nearly all the weight of the undermentioned arrivals, the amount sent up to this day being 272,000/. further sums will follow, 40,000/. in sovereigns have been withdrawn for Lisbon. We have received during the week 5500/. from the Brazils; 26,600/. from the West Indies; 28,800/. from the

Scandinavia; 308,068/. from Australia and India; total, 458,832/.—SILVER:—The entire absence of business since our last has made this market very quiet, and the price has slightly fallen; at the date of our last circular we quoted 49½d. per ounce, but transactions have subsequently taken place at 49½d., and at this rate the supply by the West India steamer was sold. The amounts to hand during the week comprise 52,000/. from New York, and 25,400/. from the West Indies. The P. and O. steamer takes 164,500/. to Bombay.

THE MINING SHARE MARKET opened rather quiet this week after the Easter holidays, and the settlement of the fortnightly account has occupied the chief attention of the dealers since. The miners most in favour have been South Frances, West Frances, West Ashton, Herodsfoot, Parys Mountain, South Condurrow, Roman Gravels, Marke Valley, Wheal Peevor, Wheal Grenville, West Chiverton, and a few others.

TIN.—The tin market has been firmer, and a rise in the standard for ore has been expected for some days, but the smelters do not yet seem to have made up their minds about it. South Condurrow, 11½ to 12½, ex div.; at the meeting dividend of 10s. per share was declared. The accounts showed a profit of 3206/. on four months' working, and a balance in

nugget of upwards of 36 ozs., which they sold in Quebec for about \$700. The first deep lead in Canada was discovered in 1863, and eleven years have been spent in carrying on the requisite works and explorations for establishing the continuity, nature, and extent of these deposits, and proving them to be of local origin, confined to well-defined channels, and yielding over a large portion of their extent from \$50,000 to \$100,000 per acre.

New Zealand Kapanga, $\frac{1}{2}$ to $\frac{1}{2}$; the report by last mail will be found in another column. It is considered satisfactory, and to speak well for the mine if properly developed.

Nouveau Monde, $\frac{1}{2}$ to $\frac{1}{2}$; owing to the discoveries of gold in Venezuela on property belonging to this company the shares which for years past have been unsaleable—in fact, never heard of—have come quite into favour. It is reported that over 1500 shares have changed hands during the last fortnight. The company was formed before the limited liability principle was introduced in England, and was formed in Paris under the French law to secure limited liability. The shares are to be bearer, the holding of the certificate being the only evidence necessary when it is desired to exercise the rights of a shareholder.

St. John del Rey, 265 to 275; the latest telegram from the mines at Morro Velho, received on Tuesday, states that the produce for March was 39,500 oitsa, of the value of 15,306L, the ley of the ore being 6.5 per ton. At Cuiabá 400 tons were stamped, yielding 2 oitsa, per ton. The payment of the 4 per cent. tax suspended. Javali, $\frac{1}{2}$ to $\frac{1}{2}$; the usual monthly report states that during 22 days in March, sometimes with 25, and occasionally, owing to dry seasons, with 20 stamps, they crushed 174 tons of ore, and obtained 531 ozs. of gold. The remittance was 1425L, and the expenditure 1043L. Chontales, $\frac{1}{2}$ to $\frac{1}{2}$; during February 1118 ozs. of ore, averaging 3.5 dwt., per ton, yielded 183 ozs. of gold, worth 484L. The cost was 679L, 18s., leaving 151L, 18s. loss.

Richmond Consolidated, $\frac{1}{2}$ to $\frac{1}{2}$; the usual telegram from the mines at Eureka, Nevada, states that the week's run was \$80,000, from 1090 tons of ore. During the week the refinery produced \$40,000. No manager's report has been received this week. Sierra Buttes, 2 to $\frac{1}{2}$; the March receipts were \$31,107, and the working expenses \$21,422. Plumas Eureka, $\frac{1}{2}$ to $\frac{1}{2}$; the March receipts were \$54,593, and the working expenses \$22,157.

In Hydraulic or Gold Washing Companies shares there has been very little doing, but it is anticipated that are long there will be a stir in them, as an effort is about to be made to place some gravel properties on the French market. The transactions of the Crédit Mobilier in foisting the Old Telegraph Mine (Société des Mines de Bingham) upon French capitalists have been fully referred to both in Paris and in London, but, unfortunately, the exposure was too late to save all the bona fide applicants for shares, although many profited by the warnings given even before accurate details were obtainable. The consequence was that by a great deal of market manipulation a nominal float was secured, so that the bona fide investors were still further mulcted through having to choose between selling at the low prices to which the shares had fallen or continuing to hold a worthless security. The chance which existed for establishing an active mining market at Paris was entirely lost through such a property at such a price being offered, and the attempt is now to be made to introduce gravel properties to the Frenchmen, although there can be no doubt that should subscriptions be obtained the results will be quite as disastrous. Not a single gravel property (situated in any part of the New World) has ever been introduced into Europe—London, Paris, or the Hague—which has been remunerative to those engaged in them. There is not one property of this class now on the market which is at present earning profits, or likely to earn profits. Of the few which have ever figured in the list of dividend paying concerns they are now only "hoping for better results." Birdseye Creek (total capital 60,000L), shares, of which each was paid, has never returned more than 14s. in dividends, and has paid nothing since 1874. Cedar Creek (capital about 170,000L) has only paid 6s. on each £1 share, and has paid nothing since 1873; and Gold Butte, with 30,000 shares of 1L each, has never paid but 2s. 4d. in dividends, and has paid nothing since 1872. No other gravel mines, and there are many of them on the London market, are recollected ever to have paid a dividend. Surely this is not the class of property which should be introduced on the Paris market if it be desired (and nothing can be more desirable) to induce French capitalists to take greater interest in mining industry.

Blue Tent, 2 to $\frac{1}{2}$; a telegram received during the week announces a further partial clean-up, with a return of \$6200. The heavy rains of late have broken down the bank of gravel, thus preventing a thorough clean-up, but this will tell considerably in favour of the company at a later date, as it gives a large body of gravel ready for washing without further expense. Placerville, $\frac{1}{2}$ to $\frac{1}{2}$; crushing has been commenced here, and the agent, writing under date of March 26, says that when crushing is started it will be a long time before it stops. The prospects are exceedingly favourable, the quartz turning out rich, and the lode and the level fully 8 ft. wide. The shaft is now down 475 ft., and good progress is being made.

Hultafall, 2 to $\frac{1}{2}$; advices from the mine, dated April 7, are to the effect that the weather has set in warm, and that the ice and snow were rapidly disappearing. The agent states that in May he will be able to raise upwards of 40 tons of rich ore per day. A sufficient stock of timber has been secured for mining purposes for the year. The mine generally is described as looking extremely well, and the dressing department will be in a perfect condition. A large portion of the ore now being raised is, it is said, in a condition to be sent forward to this country without change.

Lead Mine shares have been somewhat less enquired for, and to effect the few transactions which have taken place it has in most instances been necessary to accept slightly lower prices: Van, 19 $\frac{1}{2}$ to 20 $\frac{1}{2}$; the 120 is reported to be looking better; other points without change.

Mineral Corporation of Great Britain, 10 to 11; it is rumoured that taking advantage of the present depressed state of the metal trades the executive have secured additional and very promising property, which will add greatly to the resources of the enterprise. The reports, however, contain no notice of any such purchases, so that for the present the rumour must be taken for what it is worth. There can be no doubt that when capital is at command the purchase of property in times of depression a larger percentage upon outlay is secured than would otherwise be possible. The manager reports that considering the large piece of mineral ground driven through in No. 3 adit at Hafod he would recommend the driving of No. 4 with all speed, which he feels certain will open up a splendid mine. Great Eresby and Bryn Canodon offer nothing worthy of special notice.

Frongoch, 2 to $\frac{1}{2}$; no fresh news of importance this week, all going on well. Grogwinion, $\frac{1}{2}$ to $\frac{1}{2}$; 10 tons of lead have been sold, at 9s. 5s. per ton. Prospects still improving. Caron, $\frac{1}{2}$ to $\frac{1}{2}$; a parcel of 30 tons of lead has been sampled for next week. Mine looking very well, prospects excellent. Red Rock, 1 $\frac{1}{2}$ to $\frac{1}{2}$; a parcel of 40 tons of lead is to be sold on Wednesday next. The newly discovered ore ground is opening out profitably. Wye Valley, 1 $\frac{1}{2}$ to $\frac{1}{2}$; fair progress continues to be made in all departments. West Wye Valley, 1 $\frac{1}{2}$ to $\frac{1}{2}$; the sinking of shaft is going on well and prospects improving. Mawston, 1 $\frac{1}{2}$ to 2; another parcel of lead has been sold, which will leave a fair profit, and further sales will follow in due course. The mine continues to look well, the winze below the 22 going down in a very nice course of lead ore, and the end of the level still improving. Hartington Moor, 1 $\frac{1}{2}$ to 2. Crosswood, 1 $\frac{1}{2}$ to 2. South Cwmyoswith, $\frac{1}{2}$ to $\frac{1}{2}$; the reconstruction will shortly be accomplished.

Pateley Bridge; the Rake vein, in the 30 east maintains its value, and is looking very promising for an improvement. The new machinery is being rapidly put up, and will ere long be at work.

Subjoined are the closing quotations:—

Asheton, $\frac{1}{2}$ to $\frac{1}{2}$; Carn Brea, 30 to 32; Devon Consols, 2 $\frac{1}{2}$ to 2 $\frac{1}{2}$; Dolcoath, 28 to 30; East Caradon, $\frac{1}{2}$ to $\frac{1}{2}$; East Van, 1 $\frac{1}{2}$ to 2 $\frac{1}{2}$; Gwernymynydd, 4 to 4 $\frac{1}{2}$; Glenroy, $\frac{1}{2}$ to $\frac{1}{2}$; Glyn, $\frac{1}{2}$ to $\frac{1}{2}$; Great Laxey, 16 to 18; Hington Down, $\frac{1}{2}$ to $\frac{1}{2}$; Pateley Bridge, 1 to 1 $\frac{1}{2}$; Penstruthal, 1-16th to 3-16ths; Roman Gravels, $\frac{1}{2}$ to $\frac{1}{2}$; Pateley Brook, $\frac{1}{2}$ to $\frac{1}{2}$; Tankerville, 3 $\frac{1}{2}$ to 3 $\frac{1}{2}$; Timcroft, 10 $\frac{1}{2}$ to 11; Van, 19 $\frac{1}{2}$ to 20 $\frac{1}{2}$; West Ashton, 1 $\frac{1}{2}$ to 1 $\frac{1}{2}$; West Bassett, 4 $\frac{1}{2}$ to 5 $\frac{1}{2}$; West Chiverton, 8 to 9 $\frac{1}{2}$; Wheal Crebor, $\frac{1}{2}$ to $\frac{1}{2}$; Wheal Grenville, 3 $\frac{1}{2}$ to 3 $\frac{1}{2}$; Almada and Trito, 3-16ths to 5-16ths; Birdseye Creek, $\frac{1}{2}$ to $\frac{1}{2}$; Blue Tent, 2 to 2 $\frac{1}{2}$; Canada Gold, 2; Cape Copper, 2 $\frac{1}{2}$ to 2 $\frac{1}{2}$; Chontales, $\frac{1}{2}$ to $\frac{1}{2}$; Colorado United, 1 $\frac{1}{2}$ to 2 $\frac{1}{2}$; Don Pedro, 11-16ths to 13-16ths; Eberhard and Aurora, 4 $\frac{1}{2}$ to 4 $\frac{1}{2}$; Emma, $\frac{1}{2}$ to 2 $\frac{1}{2}$; Exchequer, $\frac{1}{2}$ to $\frac{1}{2}$; Flagstaff, $\frac{1}{2}$ to $\frac{1}{2}$; Fronton and Bolivia, 2 $\frac{1}{2}$ to 2 $\frac{1}{2}$; Hultafall, 2 to 2 $\frac{1}{2}$; I.X.L., 1-16th to 3-16ths; Javali, 3-16ths to 5-16ths; Kapanga, $\frac{1}{2}$ to $\frac{1}{2}$; Last Chance, $\frac{1}{2}$ to $\frac{1}{2}$; New Querubia, 1 $\frac{1}{2}$ to 2 $\frac{1}{2}$; Oregon Preference, 2 $\frac{1}{2}$ to 3 $\frac{1}{2}$; Pestarena, 1-16th to 3-16ths; Placerville, 2 $\frac{1}{2}$ to 3 $\frac{1}{2}$; Plumas Eureka, 2 $\frac{1}{2}$ to 3 $\frac{1}{2}$; Port Phillip, 3 $\frac{1}{2}$ to 4 $\frac{1}{2}$; Richmond Consolidated, 8 $\frac{1}{2}$ to 9 $\frac{1}{2}$; St. John's Rock, 28 to 27 $\frac{1}{2}$; San Pedro, 1 $\frac{1}{2}$ to 2 $\frac{1}{2}$; Sierra Buttes, 2 to 2 $\frac{1}{2}$; United Mexican, 3 $\frac{1}{2}$ to 4.

At Truro Ticketing, on Thursday, 2535 tons of copper ore were sold, realising 7247L. 8s. 6d. The particulars of the sale were—Average standard, 90.77s.; average produce, 64s.; average price per ton, 22.17s.; quantity of fine copper, 157 tons 8 cwt. The following are the particulars:—

Date. Tons. Standard. Produce. Per ton. Per unit. Ore copper. Mar. 29 2379 85 7 6 73 23 7 6 98.5d. 247 2 0 April 3 1140 84 8 0 3 11 0 9 6 47 11 0 17 2385 90 7 0 64 2 17 0 9 3 46 2 0

Compared with the last sale, the standard has remained stationary.

REOPENING OF CORNISH MINES.—An important meeting was held at St. Just on Friday afternoon, Mr. Richard Boyns presiding, the object of which was to consider the reworking of the St. Just Amalgamated Mines. It was determined to rework the mines under the name of St. Just United, with a capital of 4000L, in 200 shares of 20s. each. This capital will be sufficient to fork the mine and prepare it for future working. Persons competent to express an opinion speak most favourably of the undertaking, and Captain Bennett believes the mines will prove a valuable property.

RHYDALUN.—This is one of the few mines in the Mold district making profits pending the completion of the Halkyn Drainage Tunnel. The lode has not been discovered many years, and lies in virgin ground, where it is frequently found worth from 5 to 6 tons of lead ore per fathom. The mine has made rapid strides within the past 12 months, its returns having increased from 15 tons to 50 tons monthly. The reserves are stated to be enormous, and if

desired 100 tons monthly could be sent to market. It is considered to be a very valuable property.

LEAD ERA.—This mine is attracting attention as one of the best progressive concerns of the day. We understand that Capt. Arthur Waters has recently inspected it for a private party, and that two gentlemen have in consequence of his report joined the board this week.

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WANTED, TO ISSUE, £3750 WORTH OF £1 SHARES, out of 10,000, for which £250 will be allowed in cash. Particulars and reports, and every information, by applying to "F. R. A. F.," Goginan, R. S. O., Cardiganshire.

WANTED, a BROKER, who can TAKE or PLACE £2000 worth of LEAD SHARES of a GENUINE COMPANY in PROFITABLE WORKING. Good commission and bonus. Apply, by letter, "H. G. A.," MINING JOURNAL Office, 26, Fleet-street, E.C.

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"Much inconvenience having arisen in consequence of several of the Numbers during the past year being out of print, we recommend that the Journal should be sold on receipt; it then forms an accumulating useful work of reference."

MINING JOURNAL.—Bound volumes wanted of the Journal for the years 1871, 1872, and 1876. Any subscriber having them to dispose of will oblige by stating price. Address, "R. C. O., Mining Journal Office, 26 Fleet street."

Received.—"H. C. S." (New York)—"G. F."—"C. W. H."—"D. C. D."—"Shareholder" (Wheat Basset) —"Constant Reader" (Galway) —"J. B." (Paris) —"E. E." : Next week—"J. G. G." (Cardiganshire) : The letter is not adapted for publication: however, merited some of the censure may be, its general tone is altogether too personal—"Shareholder" (Monydu Gordou)—"Statist": We could not devote space for such a lengthy document. It should be printed as a pamphlet—"Reciprocity."

THE MINING JOURNAL,
Railway and Commercial Gazette.

LONDON, APRIL 19, 1879.

THE COAL QUESTION.

The coal question has been so freely discussed for several years past by many eminent authorities that any new light which can be thrown upon it cannot fail to be of interest. We, therefore, give the *resume* of a lecture delivered a few days ago at Barnsley, by Professor MARSHALL, of Leeds. The lecturer commenced by stating that at the commencement of the present century the people knew of the utility of coal, but there was little evidence to show that they ever considered that at some future time the coal supply would be exhausted. In the Staffordshire coal field the splendid Ten-yard seam was so recklessly worked that at least two-thirds of it was lost in mining. At the Northern collieries, too, great waste took place, and large quantities of the coal left after screening was burned at the pit's mouth, because the people did not care to find any use for it, whilst screened coal on its way to London was broken up so that when it reached port it was generally about the size it would have been if it had been put on board unscrubbed. Sir W. ARMSTRONG, in his presidential address to the British Association at Newcastle in 1863, directed attention to the alarming growth of the output of coal. He calculated that assuming an arithmetical increase in output similar to that of the average of the eight preceding years, our total stores to a depth of 4000 ft. would be exhausted in 212 years. Two years afterwards Professor JEVONS, in his work, showed that the question was not an arithmetical one but a geometrical one, and that, consequently, on the assumption of its uninterrupted continuance, our coal would be exhausted in 110 years from 1865. The limitation of the workable beds of coal was made on scientific principles—on account of the increase of temperature as we descended into the earth. The temperature of the earth was uniformly 50° at the depth of 50 ft., on the average, from the surface, and the temperature increased 1° for every 50 or 60 ft. of depth. Blood heat (98°) would thus be reached at a depth of 3000 ft., and then, allowing for improved ventilation, a further increase to 4000 ft. was obtained. This calculation had been disputed by some, who said that the ratio of increase in temperature was a diminishing one, but whilst it was likely under special circumstances to get down to 4000 ft. or more, yet the expense of working at that great depth would be so great that it was very improbable that many of the seams would be worked up to the limit. Therefore, we might say that a very liberal calculation indeed had been made. No trace of coal had yet been found south of a line from the Thames to the mouth of the Severn, although a boring in the Weald had been carried down to a depth of 1762 ft. They must expect that for some time the rate of consumption would go on increasing, and then after a time it would gradually decrease, until it stopped at some particular point, which might be far or which might be near. Those who had practical experience of coal raising would know that there is a great deal of coal that was never brought to the surface, and after making all allowances it was shown that the amount of coal really wasted was from 10 to 40 per cent. There was a great deal of grumbling about this waste of coal, but it would be unfair and impossible to expect a lessee to get all the seams, regardless of cost, at his own expense. With regard to coal they were in the position of a new country, and must leave their coal lessee free to get coal in the cheapest way possible. They had been told that improvements were being made in the method of working iron, and that shortly there would be a great saving in the amount of coal used. But the fact was the more they saved the more they burnt. Every economy which had taken place had resulted not in a reduction but in an increase in the amount of coal used and in the iron produced, and it was but reasonable to suppose that it would be the same in the future.

Improvements were being made in steam-engines, but the most efficient were not the most favoured, for, as in the case of the coal lessee, a cheap but wasteful engine was generally preferred to an efficient but expensive one. The steam navy had increased five-fold between 1860 and 1876, and thus trade with foreign countries had greatly developed. About seven or eight years ago, at the time of the high price of coal, a good deal was said about the wasteful way in which coal was burnt, and economical grates were introduced, but he did not suppose that many persons used them, for the same reason that a manufacturer preferred a wasteful engine which did not sink so much money rather than an expensive one which saved coal; but he did not suppose that much economy would be exercised in the domestic consumption until coal was scarcer, and prices were permanently higher. Another point which had been much talked about was electricity. There was a great scare a few months ago amongst gas companies because it was believed that electricity would shortly supersede gas. He did not believe that that would be just yet, because to produce electricity they would have to use steam engines, and if ever they did adopt electricity it would not be as a substitute for coal, but as another means for using it. When towns were lighted with oil much less money was spent than at present when gas was used, and so it might reasonably be expected with electricity. There was no likelihood of economy in the use of coal until the cost had increased to such an extent that manufacturers would begin to save. No restriction could be put upon manufacturers to compel them to use the most economical engines, and they must be left to conduct their trade in the cheapest way to themselves. There had been discussions at various times as to how far they ought to allow the export of coal to go on in the way it had done, but it was not quite on the same level as the ordinary free trade questions. The countries which took most coal away from England were France, Germany, Sweden and Norway, Italy, and Russia. To these countries we sent five-sixths of our exported coal, and received in imports only about one-tenth of the value of the coal. These countries were great coal-raising countries themselves, but the coal fields of Great Britain were so advantageously situated for the exportation of coal that it was found cheaper to import coal rather than to work their own. Enquiry did not show that the coal thus imported was used for the great industries of those countries, but that it was used in the villages all round the coast of Europe. The growth of canals and railways had also a remarkable effect in developing the inland coal fields of Great Britain. Under present conditions this country had a great pull over every other country in Europe, and if a duty was put upon the exportation of coal, masters would find it still more difficult to make their pits pay, and ultimately the whole trade would decline. In a year of bad trade there was generally a marked increase in the amount of coal exported consequent upon the coal raisers being at liberty to find markets in other countries which they were not able to do before the bad trade had affected them. Sooner or later the conditions on which we raised our coal, which made us the great manufacturing country we were, would be made worse, and the conditions on which we competed with other countries would be made more onerous.

The country which would then take up most of the running would be America, whose coal fields appear to be really boundless. Sooner or later the condition of America would enable coalowners there to undersell us, and as there would be a diminution in our coal produce and iron manufacture there would consequently be a corresponding increase in the output of coal in the United States, Germany, Australia, and New Zealand. There were, however, several things that would tend to postpone that time—such as holding fast to the principles of free trade and good government, and improving the skill of our workmen. Although our prosperity might not be of so rapid a growth as it has been during the last 100 years, still, after the iron manufacturers have left us, there was nothing to make us suppose that with our manufacture of textile fabrics and our carrying trade we might not enjoy a quiet prosperity similar to that enjoyed by Holland. There were some things which we would scarcely like to see continued, such as the drinking custom of the country. There had been an increase in the material resources of the country, but the increase of education had not kept pace with it. In the time to come we should be able to spend our money more wisely when we did not get it quite so fast, and then when there was not so much smoke about we should be better judges of colour, and be able to increase the quality of the goods we produced, so as to make up for the decrease in the quantity.

QUEENSLAND COAL RESOURCES.

Although coal is believed to be extensively diffused throughout Queensland it has yet to take its place among the leading products of that colony, being at present worked to only a comparatively small extent. Coal has been found on the banks of the Brisbane and the Bremer rivers, in other parts of the West Moreton district, and on the Darling Downs. The coal has been found to compare favourably with New South Welsh coal, and the hard oil coal of the Darling Downs is described as being capable of producing a large percentage of illuminating oil and paraffin. It is estimated that the coal beds of Queensland underlie a surface of nearly 24,000 square miles, yet from 1870 to 1874 only 144,422 tons were raised. It may appear strange that so little effort was made to turn to account such vast coal resources, but it must be remembered that population is still very scantily scattered about Queensland, while the colony is essentially pastoral and agricultural one. Moreover, Queensland is not over endowed at present with the capital required for carrying on coal mining operations upon a considerable scale. However, the extraction of Queensland coal would appear to be gradually increasing. Thus while in the five years ending with 1874 inclusive the extraction averaged scarcely 29,000 tons per annum it amounted in 1876 to 50,627 tons. The value of this coal was computed at 26,470/-, or a little over 10s. per ton—a price which certainly does not appear calculated to stimulate coal mining industry in the colony to any important extent. In fact, the absence of an immediate demand for Queensland coal checks the production of it at present almost, if not quite, as much as the absence of means of extraction.

But we must not be hard upon Queensland just because the colonists do not turn their coal resources to much account at present. Queensland only dates as an independent colony from 1859. Previous to that year it was vaguely known as the Moreton Bay district of New South Wales, but the Government over which the late Earl of DERBY was presiding in 1859 sliced an enormous area of country off unwieldy New South Wales, and gave it the by no means unpleasing designation of Queensland. It was thought, probably, that the erection of Queensland into an independent settlement would advance its colonisation, as it would be brought more immediately under the supervision of a governor and a council of ministers, and if this idea were entertained it has probably been justified by the social and economic results which have been attained by the Queenslanders during the last 20 years. In support of this observation we need state only two facts—that Queensland has contrived to build up a white English-speaking population of 200,000, while the revenue of the colony last year approached 1,600,000/-

Copper is found in Queensland as well as coal, but, as with coal, so with copper it cannot be said to be worked at present to any important extent. The richest copper mines are at Clermont and Mount Perry. The production of copper in Queensland in 1876 was 9334 tons, the value being computed at 93,100/-; of this production 2105 tons were smelted, the value being estimated at 147,000/- Gold has been worked with more vigour in Queensland than either copper or coal, and there are at present more than 20 gold fields in the colony, the most important, probably, being that of Gympie, about 130 miles from Brisbane. The goldbearing quartz at Gympie has been found to be rich and profitable. The total production of gold in Queensland in 1877 was 373,266 ozs., of the estimated value of 1,306,431/- The working of gold in Queensland has, no doubt, contributed materially to its rapid progress as a colony, as it has provided the Queenslanders to some extent with capital.

UNDERGROUND HAULAGE IN MINES.

In the present depression of mining generally anything tending to economise labour and cost becomes a matter of great importance, and as far as relates to mining underground haulage is a subject to which too great attention cannot be paid. The great objects desired are speed, with as small an amount of labour and expense as can be shown to be practicable, and of late there have been some improvements in the direction indicated, but we believe not so widely known as they ought to be. Those persons having the management of mines cannot pay too much attention to the advantages that are to be obtained from an efficient knowledge of the various methods of hooking on and detaching the tubs or corfs kept going in the workings of a mine for the purpose of bringing the material to the surface. One of the oldest known methods of transporting minerals from the bottom to the top of a mine was that in force at the Scotch collieries up to the passing of Lord ASHLEY's Act, in 1843, which prohibited the employment of women in mines and of boys under ten years of age. The coal was carried on the backs of women and children as well as men, in bags or baskets. The women who carried full loads provided themselves with wicker creels, or baskets, which were fitted to the back and steadied by a strap round the forehead. After this came the sledge, which consisted of a wooden box placed on a longitudinal frame, shod with iron. But now we have tramways over which the minerals are taken either by horses, ponies, or other power. The endless wire-rope has been a great success wherever it has been introduced. It is a simple system of attaching the corfs or tubs to the rope at any point without stopping the engine. The subject of mechanical haulage a few years ago was discussed by the North of England Institute of Mining Engineers, and the various systems were incorporated in a report. The conclusion come to was that in nearly every case planes worked at a slow speed by endless ropes running on the top of tubs, were the most economical as regards the wear and tear of the ropes and tubs. Since then several contrivances in connection with the endless rope have been made known and adopted. Where the road is level a "dog" has been fitted into a socket at the end of the tub, which carried and clipped the rope.

At a recent meeting of the Midland Institute of Mining Engineers the subject of attaching the tubs to the ropes was introduced in a brief paper by one of the members, Mr. J. W. WHITE. He introduced a method in the case where heavy gradients have to be met, a different contrivance to that just noticed, the "dog" becomes necessary, as the strain upon the end of the tub would be too great, and the tubs liable to "up-end." To effect this Mr. WHITE uses a simple clamp, by means of which a lad could hang on or loose-off. It attached the tubs as firmly to the rope as when the various screw clamps were employed. The strain came upon the drawbar, and not on the top of the tubs, so that there was no liability to up-end or damage the tub, whilst any gradient could be met. The clamp, we are told, is now working at several collieries where screw clamps were formerly used, and is found to be a great improvement. There was no liability to slip, and it could be easily made and repaired by the smith at the colliery. The clamp must be kept clear of the rollers. At the Wharncliffe Silktone we are told by Mr. Embleton a similar plan had been adopted, and answered very

well. The rope was placed under the corfs, and in running any of the latter from the side into the main road the road was so level that the corfs ran over the rope, so that the work of the engine was not interfered with, the rope being constantly moving. The apparatus was like a pair of blacksmith's tongs, and the two forks, which projected upwards, were kept tight by a piece of iron. A chain was attached to the apparatus, and no difficulty was found in attaching the corfs, or proceeding in any direction whatever. A system rather similar it appears was in operation some years at Pelton Fell, in the North of England. Thirty corfs were brought together, and a lad occupied a seat on the front one, and when going down a "jenny" he would undo the screw, and let the "sets" run down at the risk of his own life. When he came to a level he would again attach the apparatus, and the system worked uphill as well as downhill. By Mr. WHITE's contrivance, however, a train could be sent uphill and then downhill without the apparatus being unattached, and in going round a very sharp turning an arrangement can easily be made at the side of the road for doing so, but there is no difficulty whatever in carrying out the system. In conclusion, we may say that underground haulage is a subject of great importance in connection with mining economy, and it is well that all improvements in connection with it should be generally known.

TASMANIAN TIN.

The reports of the various Tasmanian Tin Companies which close their accounts to the end of the year are of a most encouraging character; it appears that with ingot tin at 60/- per ton they can produce the metal at cent. per cent. profit, or, in other words, they can produce for 18,000/- tin which at the price mentioned is saleable for 43,000/- whilst, as to quantity, the Mount Bischoff Company alone can produce, and actually are producing, 1100 tons of fine tin in the half-year, and several other concerns are quite as profitably employed. The importance of these figures will be better appreciated when it is stated that according to the last published official returns—those for 1877 (those for 1878 will probably show a slight reduction)—the yield of the whole of the tin mines in the United Kingdom for the year was but 9500 tons.

The Mount Bischoff Company held their half-yearly meeting at Launceston (Tasmania) on Jan. 31 (Mr. Alexander Webster in the chair) when their accounts were presented, showing that they had raised 43,210/- worth of tin ore, to do which they had expended in salaries and wages 16,165/- 7s. 5d.; stores, 1135/- 4s. 4d.; and other charges (including 100/- for library fund), 844/- 19s. 3d.; leaving a profit on the six months working of 25,064/- 9s., which, with 16,474/- 18s. 1d. brought forward from the previous half-year, gave an available balance of 41,639/- 7s. 1d. Of this 24,000/- was declared as dividend, 3462/- 4s. 2d. was set aside for plant, a bad debt of 31. 13s. 5d. was written off, and 14,045/- 9s. 6d. was carried forward. The Chairman stated that during the six months (to Dec. 31) 1490 tons of ore had been raised, against 1339 for the corresponding period of the previous year, showing a considerable increase. During the first half of 1878 702 tons odd had been raised, so that the yield had been nearly doubled for the last six months, and as soon as the mining manager had completed the battery and machinery for dressing the tailings the yield would be considerably increased, with but little increase in cost. The balance-sheet showed a considerable sum to credit even after the payment of a large sum in dividends, and the mining manager said the mine looked as well as ever. The low price of tin was a matter of regret, but the labour-saving appliances now being used would counteract that to a great extent by reducing the cost of production, and a letter he had received from a well-known metal broker stated it was his opinion that tin would range from 60/- to 65/- a ton, and that it was not likely to go below 60/-, and then there would be a steadier market than they had had for some time past. The tin ore produced yields 67 per cent. fine (about 150 tons has yielded 69 to 71 per cent.), and is valued at 20/- per ton at the mine. The company smelt their own ore, and thus realise the maximum of profit.

The Native Youth, the Main Creek, the Surprise, and the Try Again Tin Mining Companies' meetings were convened, but lapsed for want of a quorum, in each case the shareholders apparently being contented to receive their dividends. The Native Youth accounts alone have yet been received; this appears to be a small concern, which raised only 4058/- 16s. 9d. worth of tin, out of which, after payment of costs and charges, they declared 1500/- as dividend, and carried forward 1411/- 19s. 8d. The prospects of the Tasmanian Tin Mines certainly appear to be altogether excellent.

GOLD MINING IN TASMANIA.

Although the gold mining operations have not yet yielded brilliant results, operations are being energetically carried on, and the prospects of success are considered to be good. Daily's United Gold Mining Company held its first half-yearly meeting at Launceston (Tasmania) on Jan. 31. The report of the manager (Mr. J. G. PAYNE) stated that the prospects obtained by dish washing showed 2½ dwt. to the load. Since then he had sunk another prospecting shaft on the shallow portion and bottom at 20 ft. with 1 ft. of wash, prospects about the same, and a good deal of water. They have purchased and erected engine and pumping gear, and are now boring on Hart's lease through very favourable looking country. The Chairman stated that Mr. PAYNE had shown him a nice piece of fairly solid and not bad-looking quartz, with two good sized pieces and several specks of gold in it, which was broken from a large boulder met with in the alluvial shaft. The mining manager said it had not travelled far, and there was a great deal of such loose boulders in the other alluvial claims nearer the Cabbage Tree Hill, which had been carried down from some reef. In sinking the main shaft the contractors had cut a small ladder carrying gold, and then the water came in. They told Mr. CASTLEY that for some feet they were within a couple of feet of a body of stone, and could get gold from the casing.

At the Three Star Gold Mining Company meeting, held the same day, the directors' report stated that the operations at the mine had been commenced and carried out for some time under the management of Mr. M'NEIL, but he having resigned on Oct. 3, Mr. M. TREZIE had been appointed consulting manager, since which the contracts had been carried out under his supervision. In view of ultimate requirements for tramway and machinery site, arrangements have been made with Mr. DOUGLAS for the use of one chain in width of surface of his tramway grant, which intersects one of the company's leases; also for mining under the whole of the tramway ground for a specified distance upon a royalty of all gold obtained, a small piece of ground between the tramway and Fairthorne's sections being available. The directors were of opinion that the property was a valuable one, and well worthy a further outlay, and although unable to report any discovery of value they were still hopeful of ultimate success.

At the Southern Cross Gold Mining Company meeting the preliminary operations which had been carried on were also reported on. Mr. DOUGLAS stated that at the previous meeting he had recommended the appointment of a new mining manager, and he still thought this should be done. The mine was represented to be a valuable one, and yet returns had not come up to expectations, and he quoted from the report in support of this. The property was a good one, and yet no good appeared to be done with it, and he, therefore, thought it desirable to make a change in the mining management. He moved that the directors be requested to obtain a new mining manager.

COAL MINING IN NOVA SCOTIA.—At the forthcoming meeting of the General Mining Association the accounts to be presented will show a profit on the year's operations of 5531/- 12s. 2d., making, with the amount brought forward, an available balance of 6502/- 5s. 2d. Out of this a dividend of 4s. per share will be declared, and 500/- added to the reserve fund, leaving 258/- 9s. 2d. to carry forward. Although the continued depression in the coal trade and the severe competition from the neighbouring collieries necessitated a considerable reduction in the selling price of the coal, both at the

Sydney and Lingan Mines (in fact, prices were last season lower than has ever been known during the working of the mines by the Association), the directors are glad to say that the increased sales at Sydney Mines, coupled with a material reduction in the cost of production, have enabled that colliery to make a profit on the year's working. The manager's report shows that the collieries are in good working order, and the plant maintained in an efficient state.

NORTHAMPTONSHIRE IRON.—Owing to the recent discoveries of the method of treating the Cleveland ores for steel, as might have been anticipated, attention has been drawn to the cheap ores of Northamptonshire, and it is asserted that the elimination of the phosphorus is not more difficult from the ores of this county than from those of Cleveland. Indeed the same process is applicable to both. As the Northampton ore is some 30 per cent. cheaper than that of Cleveland in comparison with its yield of iron, there seems to be strong grounds for the opinion held that this district will be the one most beneficially affected by the recent discoveries. At any rate, it is stated that it is intended to commence operations at once for the manufacture of steel from Northampton ore.

ELECTRIC LIGHTING.—A general exhibition of the various machines, lamps, and other apparatus connected with electric lighting is to be held in the Albert Hall, accompanied at its opening by a lecture illustrative of the general principles of electric illumination, as well as of the particular systems of lighting under exhibition. The Prince of Wales, who is President of the Royal Albert Hall Corporation, has signified his intention of being present at the inaugural lecture, which will be delivered by Mr. W. H. Preece, M. Inst. C. E., Electrician to Her Majesty's Post Office. The representatives of most of the electric light systems will be represented at the exhibition, such as the Siemens, Gramme, Loutin, Wilda, Jablachoff, Rapiell, Wallace Farmer, and others. It has been arranged that the inaugural lecture shall be held on Wednesday evening, May 7, and that the exhibition shall remain open until the end of the week.

GOVERNMENT MINE INSPECTORS.—Messrs. Arthur Robert Sawyer and Ithel Treherne Rees have been appointed by the Home Secretary to be Inspectors of coal and certain other mines under "The Coal Mines Regulation Act, 1872."

NEW ZEALAND.—Mr. Thos. James, late manager of the Caledonian Mine, has been appointed underwriter to the Mining Inspector. His predecessor, Mr. Ivey, has started mining at Tapu Creek.

HALKYN DRAINAGE SCHEME AND THE FLINTSHIRE MINES.

The works in connection with the draining, by means of deep tunnels, one of the richest and most extensive pieces of mineral ground ever discovered in the kingdom is proceeding rapidly. The area drained comprises nearly 7500 acres, and includes such celebrated mines as the old Pant-y-go (worked by the first Marquis of Westminster, and returned him several millions in profits), the present Pant-y-go or deep level, Rhosemor, Great Hendre, North Hendre (now wrought above water-level), the Vron Bryn, Rhedwlyn, Bryn Celyn, Llyn-y-Pandy, Rheddalun (new lode, now wrought above water-level), &c. The royalties which the Halkyn drainage is empowered to levy from every occupier of a mine drained by the company's works are in No. 1 area 2d. 10s. per ton for lead ore, and No. 2 area 1d. 10s. per ton. In connection with the subject of profits, the company will enjoy a special advantage over most properties, as when once the district is drained its annual expenditure will be trifling; no engines will be required, nor fresh works executed; and as the Duke of Westminster is chairman and also the largest shareholder, he will therefore see that the affairs of the company are properly managed. From the returns of lead in No. 1 area, calculating on a scale of 300 tons only per month (and the lodes in Rheddalun sett have returned over that monthly up to the time that water interfered with their progress) the company should be receiving almost immediately over 20 per cent. per annum on its capital. The present rate of driving the tunnel by the use of Colonel Beaumont's celebrated rock-drills is about 80 yards a month, and very shortly some of the richest mines in this celebrated district will be drained. Indeed, the draining of the Deep Level Mine situated in the drainage area may be said to be practically accomplished, the drainage tunnel having been driven from the Old Pant-y-go Mine in this sett a distance of over 1000 yards through the property north and south, opening up a run of ore ground 200 yards in length, worth in places 3 tons to the fathom, which is acquiring greater value as it ascends into the bearing measures.

The Rhosemor Mine, which is also situated within the drainage district, before they were compelled to relinquish the working through an influx of water, divided a profit of about 34,000*l.* within a very short time. Three large powerful pumping engines were erected, but they were unable to cope with the water. It is expected that the deep tunnel will reach this property within three months time, when they will no doubt sell their engines for the benefit of the shareholders. The direct drainage tunnel will also pass through several other mining properties, amongst them the Pen-yr-Osedd, the Vron Mine, Great Hendre, and lastly Rheddalun. It is considered not at all improbable that the draining of Rhosemor and Great Hendre will also drain the other mines above mentioned, which would accomplish the object of the Halkyn District Drainage Company. The Rheddalun property would then become one of the most noted mines in Europe, as independent of the enormous deposits of lead left in the old Llyn-y-Pandy workings, stated to be worth 10 tons of lead ore per fathom, they have also discovered a powerful masterly lode above water, worth in places 6 tons of ore to the fathom, and from which they are making large returns, and earning handsome dividends. This property lies in No. 2 of the drainage area, where the royalties payable to the Drainage Company will only be 1d. 10s. per ton for lead, and advantage of 1*l.* per ton over the royalties payable by some other mines in this group. No doubt whatever is entertained but that the results of Flintshire lead mining will shortly become as startling as those of the last generation.

AMIANTHINE COAL is the name given to a new artificial fuel, the invention of M. E. L. J. Rocher, of Toulouse, which is exciting much attention, especially in America. It is essentially a compound of amianthus in fine powder, charcoal, and nitrate of lead or lime, pressed into blocks.

MAKING SAND MOULDS FOR METAL CASTINGS.—An improved apparatus for compressing the sand in the flask or box instead of hand ramming, and in combining the compressing apparatus with the present well-known moulding machine, whereby the flask or box is withdrawn from the pattern or model by two mechanical movements. The details cannot be described without drawings.

FIRE-DAMP IN MINES.—At the French Academy of Sciences, M. Daubree read a paper by MM. Mallard and Le Chatelier relative to an extremely simple means of detecting the presence of fire-damp in the air of coal mines. The practice by which the mixture of that explosive gas with the atmosphere of the galleries is now detected is by observing the flame of a safety-lamp, which, when the fire-damp comes in contact with it, is surrounded with a blue aureole. Although this system is very convenient, it is not very sensitive, because the perception of the blue colour is rendered difficult by the neighbourhood of the far more brilliant white light of the lamp. To obviate that inconvenience, the miners reduce the flame when they wish to use it as an indicator. In spite of this precaution, the lamp only marks, to use the workmen's term, when the atmosphere contains at least 3 per cent. of the explosive gas. However, an impious necessity exists for being able to detect much smaller proportions, since M. Galloway has shown that air containing only $\frac{1}{2}$ per cent. becomes explosive in presence of fine coal dust. The method proposed by MM. Mallard and Le Chatelier is to have in every gallery a lamp in which a jet of hydrogen is burned instead of the ordinary illuminating oil. The hydrogen burns with an almost colourless flame, gives little light, but great heat. Owing to the latter property, when fire-damp is present in the air, it keeps the explosive gas burning and at the same time the flame elongates. The blue aureole becomes larger than in the case of the oil lamp, and is much more easily seen, because it is not eclipsed by a more intense light. The ordinary glass chimney is replaced by one of copper, in which an orifice is made at a suitable point with a magnifying glass at a proper

distance, permitting observations of extreme accuracy to be made. Many experiments have been carried out by a committee appointed for the purpose, and the report is that so small a proportion as 4 per cent. of fire-damp in the air of the mine can be readily detected by the new method.—*Gaignani.*

REPORT FROM CORNWALL.

April 17.—It would be altogether too much to expect any activity in mining, or indeed in any other business (except what may be connected with holiday making) in Easter week. All that can reasonably be anticipated is that the market shall remain steady, and that there shall be no falling off in future prospects, and with this certainty we have been favoured. The belief which we indicated when the condition of the tin market began to improve that we should see a substantial rise before Midsummer is now very generally entertained, and a further advance is with some confidence anticipated before the end of the month. Still it must be admitted that foreign complications do not at the present moment point in the direction of such a rapid revival of general business and commerce as there not long since seemed reason to expect. We do not think that anything is likely to happen to rob us of what we have already gained, but still it is quite as well to be prepared for a slower improvement than at one time seemed probable, and, indeed, so far as there is certainty in commercial matters, absolutely to be anticipated and depended on.

We have always been sceptical of the good effect of war upon our own immediate mining concerns—that is upon tin and copper mining; for we have always held that whatever might be gained by a slightly increased demand for war purposes was likely to be lost, if not more than lost, by the general dulness of trade which always follows in the train of war in any country engaged in warlike operations. But this of course applies to wars in which we are ourselves engaged. It is quite possible, however, that wars in which other metal-producing countries are concerned, by limiting production and thus restricting the supply, may enhance the value of our own products, and this seems very likely to be an experience with regard to the war into which Chili has entered. It was the great discoveries of copper in South America that brought down the copper mines of England, and especially of Cornwall, and any shortness in the supply from that quarter is certain to react favourably with us. Though copper mining has been somewhat falling behind of late, we believe there is a very wide field open for its extension alike in Devon and in Cornwall if prices were only at a fairly remunerative point. Even a moderate advance here also would lead to important results.

It is satisfactory to find that the remarks which we recently made in favour of the Cost-book System as compared with that of Limited Liability for general mining operations are so very widely endorsed. After all, theorise as we may, experience is the best guide, and we have had proof, only too ample, that it is the Cost-book System which alone has enabled mining in the West to weather the storm. Another illustration, which has, however, in the brighter prospects of the present its encouraging side, comes from St. Just. It is now almost—indeed, we may say quite—certain that the St. Just Amalgamated Mines will be at work again. St. Just Amalgamated and Cape Cornwall are to be worked together, under the appropriate name of St. Just United, and there is every confidence felt in future success. The Amalgamated Mines, when the limited liability company (in whose hands they were) fell short of funds, were yielding good returns of tin, and nothing but a want of money led to the suspension of operations. In the last month's working a single party of men broke 12 tons of tin, and it is perfectly certain that had the Cost-book System taken the place of Limited Liability the mines would have been working at the present moment. When the property was sold Mr. Richard Byns became the purchaser, and some men have always been employed from that time to this above the adit. But it is now to be once more thoroughly developed. With the advantage of an influential proprietor there will be an abundance of money forthcoming, and with the improved price for tin there is strong ground for believing this will turn out to be one of the finest paying properties in the district. Another six months will elapse before the mines are in fork and everything put in order, and then success seems to be assured. St. Just needs all it can get, for the pinch there has been severe.

There has been a lamentable illustration of the dangers of incautious dealing with dynamite, though only indirectly connected with mining. By an explosion, on Monday, at Higher Trannas, near Praze, Crown, Mary Rodda, aged 60, and her grandchild of four years old, were killed, and her two sons, J. and T. Rodda, seriously injured. The brothers, who are miners, were in the habit of devoting the time at their disposal after returning from the mine in bringing a piece of waste land or croft into cultivation, and found it necessary to use dynamite or some other explosive to break the granite rocks. On Monday, about 4 P.M., four cartridges were put into a du-tpan and placed near the fire to soften whilst the brothers partook of dinner on their return from the mine, and during the time the family was enjoying their meal the cartridges exploded, killing Mrs. Rodda and her grandchild instantaneously, causing concussion of the brain and other injuries to one of the brothers, and so fearfully fracturing the right arm and shoulder of the other brother that it was feared that the arm would have to be amputated. The furniture in the room was shattered to pieces, one side of the house was blown out, and the roof lifted completely out of its place.

REPORT FROM MONMOUTHSHIRE AND SOUTH WALES.

April 17.—The adjourned delegate meeting of colliers has been held at Merthyr. The masters' proposals were submitted and refused by a large majority. About 20,000 men were represented, and there was a majority of about 9000 against accepting the employers' terms. There is no doubt the house colliers played an important part in the voting. If one comes to discuss the question whether the men have acted wisely in the matter there can be but one candid opinion. The result of the refusal will be to allow the sliding scale of agreement to run out. Now, it is generally admitted on all hands that this arrangement has been a protection to both sides; by rescinding it, therefore, the men will have to bear the brunt of what the masters will undoubtedly do on the expiration of the agreement—make the best terms they can with the men.

There is nothing new from Dinas, and no fresh meetings have been held with regard to the proposed opening out of the Abercarn pit. A verdict of "Accidental Death" has been returned in the case of a man named Rees, who was killed by an explosion at the No. 2 Penydarren Colliery, belonging to the Dowlais Company. Eight other men were also injured. An explosion of gas has also occurred at one of the company's other pits. Fortunately only one man was slightly injured. At the Gethin Pit, Merthyr, belonging to Mr. Crawshay, of Cyfartha, a narrow escape has occurred. Half a score of boys were being let down, when the carriage struck against some obstacle and upset. Nine alighted safe on the sides, but the tenth broke his leg.

The past week has been a broken one, in consequence of the recurrence of the Easter holidays. The iron trade shows no improvement, and clearances of iron made last month make a poor comparison with those of the corresponding period of the previous year. Spring certainly has not heralded any improvement in this branch of industry. There are some small orders in hand, it is true, but they are executed necessarily at very low rates. Railway iron is a dull sale; bars are still rather more active. Following the example of Dowlais, a reduction in wages has been enforced at Briton Ferry. Bessemer steel rails sell at extremely low quotations. Iron clearances have been almost nil during the week. In the tin-plate trade the improvement noted of late continues. Prices are maintained up to late rates.

The Coal Trade is fairly active, and that the demand has increased is evident by the figures which are below quoted. The demand for steam qualities has been well kept up, but prices are stationary, and do not seem inclined to move. Thanks to the continuance of cold weather the demand for house qualities is steadily maintained. The collieries, as a rule, are irregularly employed; and, taking the average, nothing like fully. Shipments are rather larger. Patent fuel shows a little more animation.

During March Newport cleared 2516 tons of iron, compared with

8536 tons in the same month of 1878; Cardiff, 5764 tons, against 6974 tons; and Swansea, 169 tons, against 321 tons. In the same periods, too, Cardiff cleared 361,998 tons of coal, against 325,808 tons in the corresponding month of last year; Newport, 81,315 tons, against 58,595 tons; Swansea, 62,297 tons, against 61,030 tons; and Llanelli, 8686 tons, against 6529 tons. Coastwise clearances likewise were—Cardiff, 73,366 tons, compared with 63,539 tons; Newport, 86,922 tons, compared with 62,059 tons; Swansea, 51,665 tons, against 32,147 tons; and Llanelli, 9749 tons, against 10,121 tons.

REPORT FROM NORTH AND SOUTH STAFFORDSHIRE.

April 17.—The new orders which have reached the proprietors of mills and forges, and of blast-furnaces, in South Staffordshire as the outcome of the Quarterly Meetings have not been of great importance. The re-declaring of last quarter's prices has had the effect of leaving the market pretty much in the same position as before the meetings of last week were held. Still, actual selling rates are decidedly more favourable to buyers now than in January last. The steel question is engaging considerable attention amongst traders just now, and a fresh interest in the subject has been awakened by the specimens of steel made from Cleveland ores by Messrs. Böckow, Vaughan, Co., which have just recently been shown in this district. The coal trade is in a similar position as at the date of last report.

The matter of the raising of money by the members of the Tipton District Committee of the Mines Drainage Commissioners, with a view to preventing the stoppage of the pumping-engines, has this week assumed a still more favourable aspect. At a meeting of the committee in Wolverhampton, on Wednesday, most of the members offered to double the amount for which they had previously held themselves as guarantors, and it is understood that some 10,000*l.* is in this way now forthcoming. Other help is urgently needed, but meantime the pumps are being kept going.

On Monday Mr. Joseph Chamberlain, M.P., made his award in the dispute between the Cannock Chase miners and their employers, and the agreement is to take effect on and after April 1, and to continue subject to six months notice on either side. The document sets forth that—"The new scale is to be based on the average selling price of deep and shallow coal at the four following collieries:—Cannock Chase, Cannock and Rugeley, Brereton and Brownhills, and shall be as follows:—When the average price of deep and shallow coal is 15s. per ton wages shall be 3s. 6d. per holer's day; the rate of wages to rise or fall in the proportion of 1*l*. per holer's day for each 6d. per ton on the average price of deep and shallow coal, the wages not to be reduced below 2s. 6d. per holer's day, nor raised above 5s.

The miners' leaders are fully alive to the weakness at the present time of their Union in this district, and they are, therefore, holding meetings amongst their constituents with a view to stimulating the Union movement. Such resolutions as the following are being adopted at gatherings of the miners in several of the districts in South Staffordshire:—"It is the opinion of this meeting that a conference should be held at some central place with a view to bringing the miners of North and South Staffordshire, Salop, and East Worcestershire together, as nothing but a more powerful combination among the pitmen of these counties will enable them to protect their social and industrial interests."

The South Staffordshire and East Worcestershire Mining Accident Fund quarterly meeting was held in Wolverhampton on Wednesday. The secretary reported he had applied to the trustees of several colliery accident funds for a grant out of any surplus they might possess. The replies did not lead to the belief that much aid would be available from this source. Eight widows whose husbands had been killed while at work at collieries were each voted 4*l*. 10*s.*, and twenty children, all under thirteen years, comprised in the families were each granted 10*s.* These grants did not half consume the amount available for distribution.

A meeting of the creditors of Messrs. Harrison and Son, of the Cormorant Ironworks, Walsall, has been held at Birmingham. The debtors' solicitor proposed the acceptance of a cash composition of 3s. 6d. in the pound, which he said a friend of the debtors was prepared to pay down within a fortnight of the registration of the resolutions if necessary. The debtors' statement of affairs showed that the unsecured liabilities were 4427*l*. 15*s.* The assets were a total of 833*l*. From this sum 20*l*. had to be deducted for payment in full to creditors, leaving the net assets at 659*l*. The creditors resolved to adjourn the meeting for a fortnight, and appointed a committee to investigate and report on the debtors' affairs.

The directors of the John Bagnall Iron Company issued their report on Thursday. It shows a loss on the year of 12,693*l*. The directors state that 16,000*l.* is still due to the company from Mr. Albert Grant, who was one of the promoters. A meeting of the creditors of Messrs. Edward's Brothers, of the Cape Ironworks, was held in Birmingham, on Thursday. The liabilities amounted to 31,000*l*, and the assets to 10,000*l*. It was determined to wind up the estate in liquidation.

REPORT FROM NORTH WALES, SALOP, AND CARDIGAN.

April 17.—Perhaps I had best begin this report by answering my question of a few weeks back. Given a mine the purchase money for which is 70,000*l*, and in which every other fathom of the lode forward will yield a net profit of 3*l*. 10*s.*, how many fathoms of ground will have to be cut before the purchase money will be repaid to the purchasers? My answer is 43,750 fathoms, equal, leaving out fractions to a space of the lode, to one mile long by 25 fathoms deep. If to the purchase money we add 35,000*l*. for further development we shall require half as much again before the mine will repay its outlay. I make no further comments.

Looking over last year's Journals I see that the Mineral Corporation of Great Britain has been incorporated a year. Now, considering that the mines selected for operation were partly developed when this company took them, we ought soon to hear of some tangible results.

We cannot but wish the National Bank of Wales success, although it can hardly be said that there is a great lack of banking facilities in the Principality. The North and South Wales have been increasing the number of their branches, so has the National Provincial Bank of England, and both have been absorbing some of the lesser local banks. Some of these latter, however—the Carnarvonshire District Bank for example—have extended their business of late years, and the Midland Banking Company is pushing its way successfully westward. Still, spite of temporary drawbacks the trade of the Principality is increasing, and the amount of profit made by existing banks show that there is scope for another.

It appeared lately as if the lime and limestone trade was improving, but I am sorry to record that this is not the case. Some of the large quarries have not sold so much during the first quarter of the year by 1000 tons as they did last year, bad as trade was then.

Accidents have been of rare occurrence on the Festiniog Narrow Gauge Railway, but on Wednesday last, the 9th inst., a loaded slate train ran off the line near Portmadoc. Happily no lives were lost, but the wagons and slates were much damaged.

There have of late been bands of ruffians at Aberganolwyn, a slate quarrying village near Towy, who have been doing great mischief and committing many depredations in a lawless and audacious manner. This is an unusual state of things for North Wales, and the magistrates assembled in Quarter Sessions at Dolgelly, last week, expressed their determination to put a stop to it.

The sub-committee of the Liverpool Town Council have finally decided in favour of the scheme for bringing water to Liverpool from the upper tributaries of the River Wyrniew, near Llanwddyn. The estimated cost for a supply of 40,000,000 gallons per day is 1,253,294*l*.

The works for the drying and preparation of sewage sediment by Kidd's patent process are now in course of erection at the Oswestry sewage tanks. The result of this trial will determine the advisability of treating sewage by this or similar processes in the case of larger towns.

The people of Oswestry are about to memorialise the Great

and carry a chain wheel with their axles at their other ends; these frames are provided with regulating screws by which the incline of the said canals can be regulated to suit any size of material. It will also be understood that for each size a different pressure of air is required. A shaking apparatus is placed below each rotating endless floor, so that the material on the same is given a sort of jumping motion. The dust chamber and hoppers are provided with endless screws or other suitable apparatus to remove the substances deposited in the same. The said hoppers are each provided with an endless screw, so that it can at once be seen if the apparatus is properly regulated.

TRANSMISSION OF POWER BY COMPRESSED AIR.

The opinion is now very general that the maximum of economy in the use of rock-drilling machinery is to be looked for less in the further improvement of the drills themselves than in the perfection of the air-compressing machinery, and this perfection can only be arrived at by careful attention to the various scientific considerations connected with the subject. The whole question is ably discussed in a recent volume* of Van Nostrand's Science Series, by Mr. Robert Zahner, and the information he supplies is so valuable that it should be generally studied by all who have occasion to use compressed air. The subject of compressed air and compressed-air machinery offers, as Mr. Zahner states, a wide field for useful investigation. Compressed air has become a most efficient and powerful agent in the hands of the modern engineer. Its applications are rapidly growing both in extent and importance. There can be no doubt that the great waste of energy that to-day accompanies the use of compressed air is due not only to sickly design and faulty construction of machines, but very largely also to the general ignorance of the principles of thermodynamics. In his historical notice Mr. Zahner points out that the application of compressed air to industrial purposes dates from the close of the last century. Long before this, indeed, we find isolated attempts made to apply it in a variety of ways, but its final success must be ascribed to the present age—the age of mechanic arts—an age inaugurated in so splendid a manner by the genius of Watt, and which has been so wonderfully productive in good to mankind. Cubitt and Brunel, between 1851 and 1854, first applied compressed air in its statical application to the sinking of bridge caissons. Prof. David Colladon, of Geneva, in 1852, first conceived and suggested the idea of employing it in the proposed tunnelling of the Alps, and finally Sommeiller first practically realised and applied Colladon's idea in the boring of the Mont Cenis Tunnel.

For transmitting power to great distances shafts, belts, friction wheels, and gearing are clearly out of the question. The practical incompressibility and want of elasticity of water renders the hydraulic method unfit for transmitting regularly a constant amount of power; it can be used to advantage only where motive power acting continuously is to be accumulated and applied at intervals, as for raising weights, operating punches, compressive, forging, and other work of an intermittent character requiring a great force acting through a small distance. Compressed air is the only general mode of transmitting power; the only one that is always and in every case possible, no matter how great the distance nor how the power is to be distributed and applied. No doubt as a means of utilising distant yet hitherto unavailable sources of power the importance of this medium can hardly be over-estimated. But compressed air is also a store of power, for we can accumulate any desired pressure in a reservoir situated at any distance from the source, and draw upon this store of energy at any time, which is not possible either in the case of steam, water, or wire-rope. But compressed air is especially adapted to underground work; steam is here entirely excluded, for the confined character of the situation and the difficulty of providing an adequate ventilation renders its use impossible. Compressed air, besides being free from the objectionable features of steam, possesses properties that render its employment conducive to coolness and purity in the atmosphere into which it is exhausted. The boring of such tunnels as the Mont Cenis and St. Gotthard would have been impossible without it. Its easy conveyance to any point of the underground workings, its ready application at any point, the improvement it produces in the ventilating currents, the complete absence of heat in the conducting pipes, the ease with which it is distributed when it is necessary to employ many machines whose positions are daily changing, such as hauling engines, coal-cutting machines, and portable rock drills; these and many other advantages when contrasted with steam under like conditions give compressed air a value which the engineer will fully appreciate.

There is every reason to believe that compressed air is to receive a still more extensive application. The diminished cost of motive power when generated on a large scale compared with that of a number of separate steam-engines and boilers distributed over manufacturing districts, and the expense and danger of maintaining an independent steam power for each separate establishment where power is used, are strong reasons for generating and distributing compressed air through mains and pipes laid below the surface of the streets in the same way as gas and water are now supplied. Especially in large cities would the value of such a system be invaluable; no more disastrous boiler explosions in shops filled with hundreds of working men and women; the danger of fire greatly reduced; a corresponding reduction in insurance rates; an important saving of space; cleanliness, convenience, and economy. As affording a means of dispensing with animal power on our tramways compressed air has been proposed as the motor. It has already met with some success in this direction, and to-day there are eminent French, English, and American engineers at work upon this interesting problem. Mr. Zahner treats first of the conditions modifying efficiency in the use of compressed air—loss of energy, methods of cooling, conditions most favourable to economy in the use of compressed air, efficiency attained in practice, and losses of transmission. In treating of the physical properties and laws of air Mr. Zahner deals with the subject in a manner which will make it intelligible to every practical man, and the same may be said of the subsequent chapters—thermodynamic principles and formulae, thermodynamic equations applied to permanent gases, thermodynamic laws applied to the action of compressed air, the efficiency theoretically attainable, the effects of moisture, of the injection of water, and of the conduction of heat; American and European air compressors; and examples from practice. There is, probably, no other book containing the same amount of useful information in a similar space, a circumstance which will suffice to commend it to the attention of every engineer who uses or could use compressed air as a motor.

STEAM-ENGINES.—The invention of Mr. CHARLES NOTTBRECK, of Tammerfors, Finland, relates to the class of steam engines known as rotary steam-engines. The outer cylinder is bored out eccentrically to the inner cylinder, in which are two slots for the slides which act as pistons, and which are kept in contact with the inner periphery of the outer cylinder by springs or by steam. At each end of the cylinders is a circular plate which keeps the piston slides in their places, and the driving axles are connected to these plates. At the under side of the inner cylinder is a plate which is pressed by springs against the inner cylinder to keep it steam-tight, and oil is admitted at the point of contact to lubricate the parts. At one side of this plate the steam is admitted, and at the other side the exhaust steam is discharged.

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* "The Transmission of Power by Compressed Air." By ROBERT ZAHNER, M.E. New York: Van Nostrand, London: Trübner and Co., Ludgate Hill.

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For transmitting power to great distances shafts, belts, friction wheels, and gearing are clearly out of the question. The practical incompressibility and want of elasticity of water renders the hydraulic method unfit for transmitting regularly a constant amount of power; it can be used to advantage only where motive power acting continuously is to be accumulated and applied at intervals, as for raising weights, operating punches, compressive, forging, and other work of an intermittent character requiring a great force acting through a small distance. Compressed air is the only general mode of transmitting power; the only one that is always and in every case possible, no matter how great the distance nor how the power is to be distributed and applied. No doubt as a means of utilising distant yet hitherto unavailable sources of power the importance of this medium can hardly be over-estimated. But compressed air is also a store of power, for we can accumulate any desired pressure in a reservoir situated at any distance from the source, and draw upon this store of energy at any time, which is not possible either in the case of steam, water, or wire-rope. But compressed air is especially adapted to underground work; steam is here entirely excluded, for the confined character of the situation and the difficulty of providing an adequate ventilation renders its use impossible. Compressed air, besides being free from the objectionable features of steam, possesses properties that render its employment conducive to coolness and purity in the atmosphere into which it is exhausted. The boring of such tunnels as the Mont Cenis and St. Gotthard would have been impossible without it. Its easy conveyance to any point of the underground workings, its ready application at any point, the improvement it produces in the ventilating currents, the complete absence of heat in the conducting pipes, the ease with which it is distributed when it is necessary to employ many machines whose positions are daily changing, such as hauling engines, coal-cutting machines, and portable rock drills; these and many other advantages when contrasted with steam under like conditions give compressed air a value which the engineer will fully appreciate.

There is every reason to believe that compressed air is to receive a still more extensive application. The diminished cost of motive power when generated on a large scale compared with that of a number of separate steam-engines and boilers distributed over manufacturing districts, and the expense and danger of maintaining an independent steam power for each separate establishment where power is used, are strong reasons for generating and distributing compressed air through mains and pipes laid below the surface of the streets in the same way as gas and water are now supplied. Especially in large cities would the value of such a system be invaluable; no more disastrous boiler explosions in shops filled with hundreds of working men and women; the danger of fire greatly reduced; a corresponding reduction in insurance rates; an important saving of space; cleanliness, convenience, and economy. As affording a means of dispensing with animal power on our tramways compressed air has been proposed as the motor. It has already met with some success in this direction, and to-day there are eminent French, English, and American engineers at work upon this interesting problem. Mr. Zahner treats first of the conditions modifying efficiency in the use of compressed air—loss of energy, methods of cooling, conditions most favourable to economy in the use of compressed air, efficiency attained in practice, and losses of transmission. In treating of the physical properties and laws of air Mr. Zahner deals with the subject in a manner which will make it intelligible to every practical man, and the same may be said of the subsequent chapters—thermodynamic principles and formulae, thermodynamic equations applied to permanent gases, thermodynamic laws applied to the action of compressed air, the efficiency theoretically attainable, the effects of moisture, of the injection of water, and of the conduction of heat; American and European air compressors; and examples from practice. There is, probably, no other book containing the same amount of useful information in a similar space, a circumstance which will suffice to commend it to the attention of every engineer who uses or could use compressed air as a motor.

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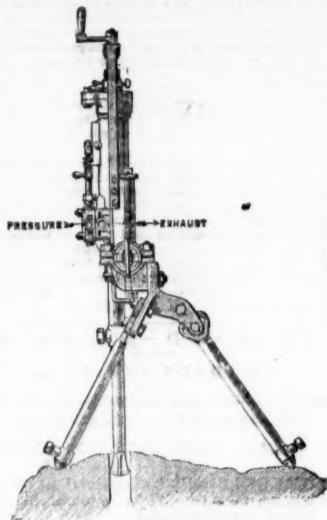
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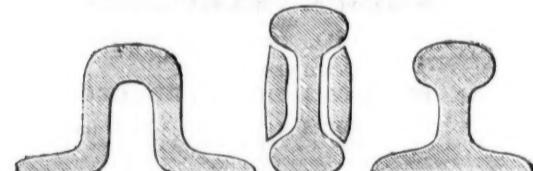
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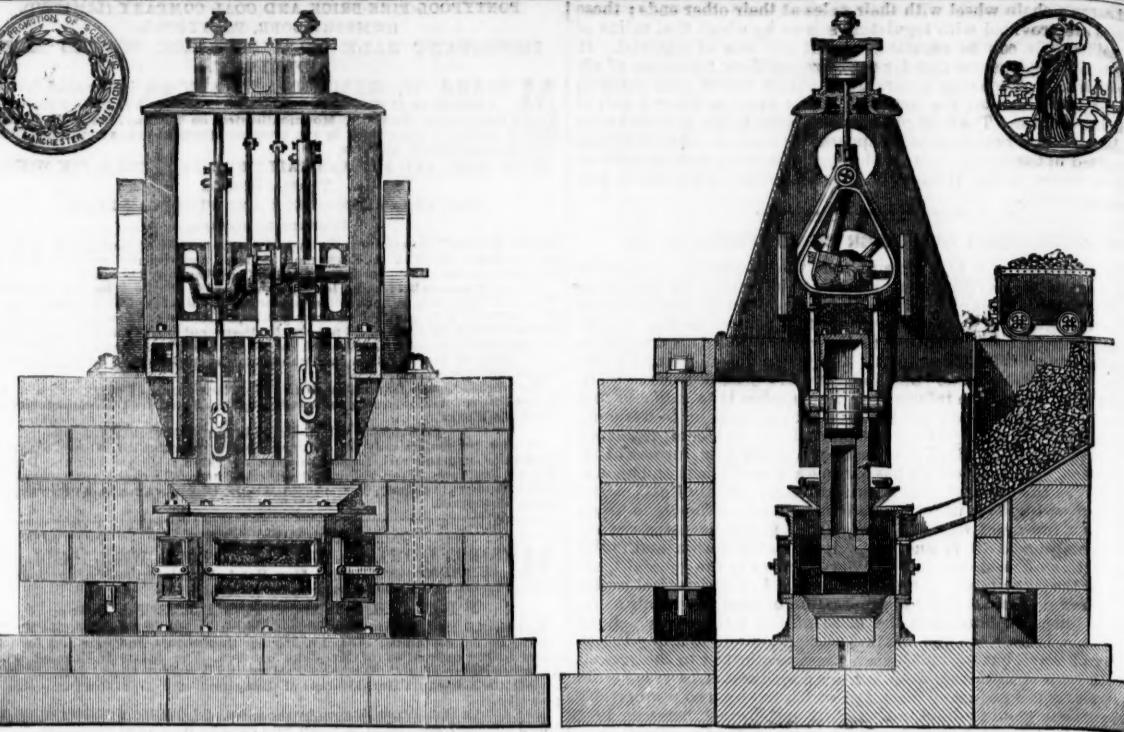
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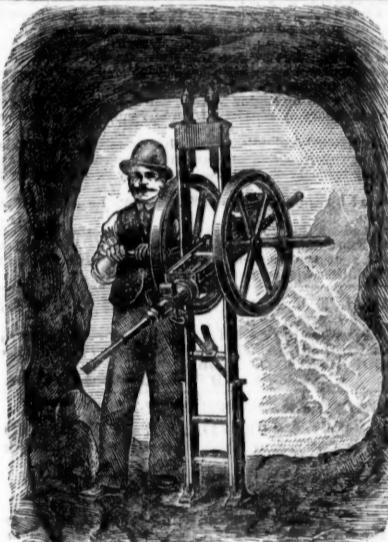
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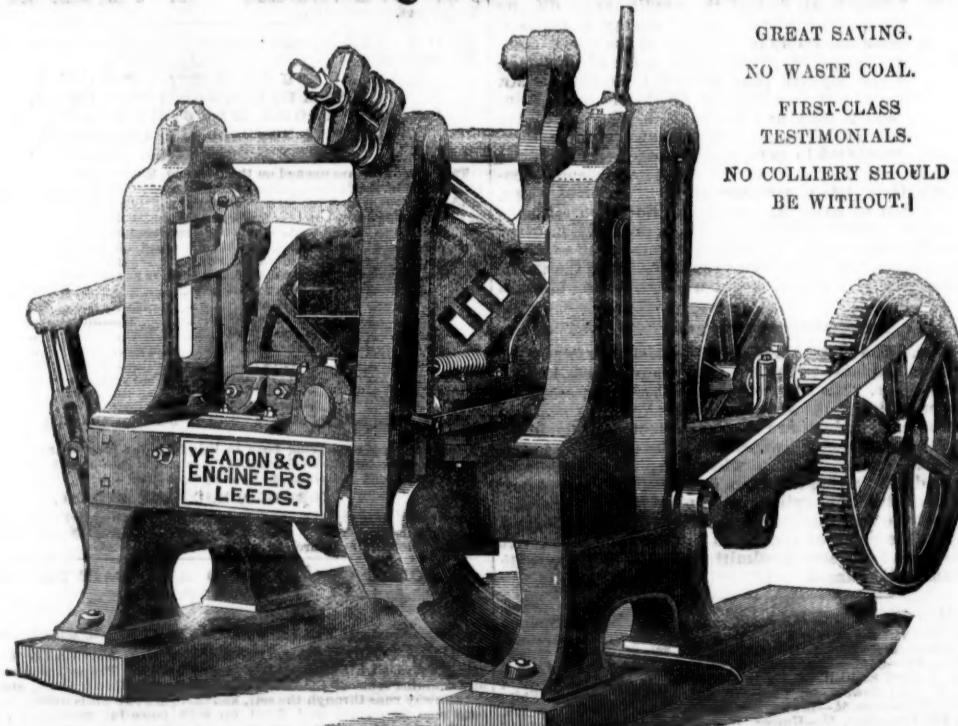
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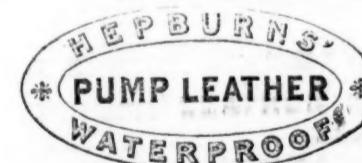
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THE MINING SHARE LIST.

BRITISH DIVIDEND MINES.

<i>Shares.</i>		<i>Paid.</i>	<i>Last wk.</i>	<i>Clos pr.</i>	<i>Total dies.</i>	<i>Fer sh.</i>	<i>Last pd.</i>
2000 Bryn Alyn*, t, Denbigh.....	10 0 0	—	—	—	0 1 0	0 1 0	Jan. 18
10000 Caron, t, Cardigan.....	2 0 0	—	21 $\frac{1}{2}$ 2 $\frac{1}{2}$	—	0 4 0	0 2 0	Oct. 18
1000 Carn Brea, c, Illogan†.....	55 7 6	—	32 $\frac{1}{2}$ 32	—	308 0	0 1 0	Feb. 18
400 Cashwell t, Cumberland*.....	2 10 0	—	—	—	1 9 6	0 2 0	Aug. 18
2450 Cook's Kitchen, t, Illogan†.....	25 14 9	—	3 $\frac{1}{2}$ 2 $\frac{1}{2}$	—	11 17 0	0 1 7	Jan. 18
240 Devon Gt. Consols, c, Tavistock*.....	1 0 0	—	2 $\frac{1}{2}$ 2 $\frac{1}{2}$	—	116 15 0	0 5 0	July 18
4296 Dolcoath, c, Camborne*.....	10 14 10	—	29 $\frac{1}{2}$ 30	—	112 1 8	0 5 0	Nov. 18
5000 East Black Craig*, t, Scotland.....	6 0 0	—	—	—	0 10 0	0 10 0	Feb. 18
300 East Darren*, t, Cardiganshire.....	32 0 0	—	—	—	235 10 0	1 0 0	Aug. 18
6400 East Pool, t, c, Illogan.....	0 9 9	—	1 $\frac{1}{2}$ 1 $\frac{1}{2}$	10 $\frac{1}{2}$ 11 $\frac{1}{2}$	18 15 3	0 3 0	Jan. 18
40000 Glasgow Carr., c* [80,000 £1 p., 10,000 15l. p.].....	1 0 0	—	3 $\frac{1}{2}$ 1	—	0 13 10	0 6 0	Aug. 18
8500 Gorsedd & Merlyn Cons., t, Flint.....	2 10 0	—	2 $\frac{1}{2}$ 2 $\frac{1}{2}$	3	0 5 0	0 5 0	Aug. 18
15000 Great Laxey, t, Isle of Man*.....	6 0 0	—	16 $\frac{1}{2}$ xd. 16 $\frac{1}{2}$ xd.	—	24 15 0	0 5 0	Apr. 18
615 Gt. Retallack, t, Perranzabuloe.....	5 18 8	—	—	—	0 1 6	0 1 6	May 18
6400 Great North, t, Durham.....	6 0 0	—	5 $\frac{1}{2}$ 5 $\frac{1}{2}$	—	2 2 0	0 3 0	Mar. 18
20000 Grogwinion, t, Cardigan*.....	2 0 0	—	3 $\frac{1}{2}$ 2 $\frac{1}{2}$	3 $\frac{1}{2}$	0 14 10	0 10 0	Aug. 18
9850 Gunnislake (Clitter), t, c.....	5 5 0	—	1 $\frac{1}{2}$ 1 $\frac{1}{2}$	1 $\frac{1}{2}$ 1 $\frac{1}{2}$	0 18 9	0 1 0	Oct. 18
6000 Holm bush, a, c, t, Callington*.....	1 0 0	—	—	—	0 4 6	0 6 0	Sept. 18
2800 Isle of Man, t, Isle of Man*?.....	25 0 0	—	—	—	82 5 0	0 10 0	Feb. 18
20000 Leadhills*, t, Lanarkshire.....	6 0 0	—	2 $\frac{1}{2}$ 2 $\frac{1}{2}$	—	0 15 0	0 3 0	Mar. 18
400 Lisburne*, t, Cardiganshire.....	18 15 0	—	35	30 35	497 10 0	1 0 0	Mar. 18
9000 Marke Valley, c, Linkinhorne	5 3 6	—	3 $\frac{1}{2}$	5 $\frac{1}{2}$ 7 $\frac{1}{2}$	7 15 0	0 2 0	Jan. 18
10000 Mellancean Copper, Hayle*	2 0 0	—	3 $\frac{1}{2}$ 3 $\frac{1}{2}$	3 $\frac{1}{2}$ 3 $\frac{1}{2}$	0 8 0	0 3 0	Feb. 18
9000 Minera Mining Co., t, Wrexham*	5 0 0	—	11	9 10	67 19 8	0 2 0	Feb. 18
20000 Mining Co. of Ireland, c, t, l*?	7 0 0	—	—	—	23 17 6	0 2 6	Jan. 18
1024 North Busy, c, Chacewater	1 14 0	—	—	—	1 0 0	0 5 0	Oct. 18
1-289 North Hendre, t, Wales	2 10 0	—	6 $\frac{1}{2}$	6 $\frac{1}{2}$	2 12 6	0 5 0	Apr. 18
30,000 Panty Mwyn*, t, Mold (6794 ins.)	2 0 0	—	—	—	0 3 0	0 2 0	Aug. 18
8000 Pen-an-dres Con., t, Redruth	0 8 6	—	—	—	0 9 0	0 9 0	June 18
5000 Penhale, t, St. Agnes	5 17 6	—	1 $\frac{1}{2}$ 1 $\frac{1}{2}$	1 $\frac{1}{2}$ 1 $\frac{1}{2}$	3 13 6	0 2 0	July 18
6000 Pennant, t, bar, North Wales*	5 0 0	—	4 $\frac{1}{2}$	4 $\frac{1}{2}$	0 10 0	0 5 0	Mar. 18
45792 Penstrithual, t, c, Gwennap	2 0 0	—	5 $\frac{1}{2}$	5 $\frac{1}{2}$	0 2 8	0 0 8	Nov. 18
14000 Prince Patrick, t, l, Holywel \$	1 0 0	—	1	3 $\frac{1}{2}$	0 14 0	0 1 3	Jan. 18
12000 Dlpt, pref. (8000 issued)	0 10 0	—	—	—	—	—	—
10000 Red Rock*, t, Cardigan	2 0 0	—	2 $\frac{1}{2}$	1 $\frac{1}{2}$ 2	0 4 0	0 2 0	Jan. 18
12000 Roman Gravels, t, Salop*	7 10 0	—	9	8 $\frac{1}{2}$ 9 $\frac{1}{2}$	7 15 0	0 5 0	Mar. 18
512 South Cadron, c, St. Cleer	1 5 0	—	55	50 60	744 10 0	1 0 0	Nov. 18
5123 South Condurrow, t, c, Camborne I	6 5 6	—	12	11 $\frac{1}{2}$ 12 $\frac{1}{2}$ xd.	5 7 0	0 10 0	Apr. 18
12000 St. Harmon*, t, Montgomery	3 0 0	—	1	1 $\frac{1}{2}$ 2 $\frac{1}{2}$	0 12 0	0 3 0	July 18
10000 St. Pr. Patrick*, t, l (8000 sh. issued)	1 0 0	—	—	—	0 7 0	0 1 0	Oct. 18
4500 South Wh. Frances, t, Illogan†	7 12 4	—	10 $\frac{1}{2}$	10 10 $\frac{1}{2}$	37 12 0	0 7 0	Jan. 18
12000 Tankerville, t, Salop*	6 0 0	—	3 $\frac{1}{2}$	3 $\frac{1}{2}$ 3 $\frac{1}{2}$	4 17 0	0 5 0	Dec. 18
8000 Tincroft, c, t, Pool, Illogan†	11 10 0	—	11	10 $\frac{1}{2}$ 11	50 8 5	0 5 0	May 18
15000 Van, t, Llandioedd	4 5 0	—	21	10 $\frac{1}{2}$ 20 $\frac{1}{2}$	23 10 6	0 5 0	Jan. 18
3000 W. Chiverton, t, Perranzabuloe \$	15 15 0	—	3	3 4	55 10 0	0 10 0	Feb. 18
1782 West Poldice, St. Day*	11 0 0	—	—	—	1 19 0	0 4 0	July 18
512 West Tolgus, c, Redruth	98 10 0	—	28	27 $\frac{1}{2}$ 30	33 0 0	1 0 0	Jan. 18
2048 West Wheal Frances, t, Illogan \$	29 1 3	—	5 $\frac{1}{2}$	5 $\frac{1}{2}$ 5 $\frac{1}{2}$	16 12 6	0 8 0	Oct. 18
600 West Wh. Seton, c, Camborne†	49 0 0	—	6	6	446 0 0	0 15 0	Apr. 18
12000 West Wye Valley*, t, Montgomery	3 0 0	—	1 $\frac{1}{2}$ 1 $\frac{1}{2}$	1 $\frac{1}{2}$ 1 $\frac{1}{2}$	0 12 0	0 3 0	Nov. 18
1024 Wh. Eliza Consols t, St. Austell	18 0 0	—	—	—	19 10 0	1 10 0	Aug. 18
3048 Wheal Jane, t, Kes†	5 13 10	—	3 $\frac{1}{2}$	3 $\frac{1}{2}$ 3 $\frac{1}{2}$	8 5 0	0 5 0	July 18
4298 Wheal Kitty, t, St. Agnes	5 4 6	—	1 $\frac{1}{2}$	1 $\frac{1}{2}$	11 19 6	0 2 6	Dec. 18
25000 Wh. Newton, a, c, t, Galstock*	1 0 0	—	—	—	0 8 6	0 4 0	Sept. 18
80 Wheal Owles, t, St. Just†	173 15 0	—	—	—	822 10 0	4 0 0	Aug. 18
1000 Wheal Peveril, t, Redruth	7 11 0	—	9 $\frac{1}{2}$	9 $\frac{1}{2}$ 9 $\frac{1}{2}$	1 2 6	0 7 6	Mar. 18
8 00 Wheal Prussia, t, Redruth	0 5 0	—	—	—	0 4 0	0 1 0	July 18
10000 Wye Valley, t, Montgomery*	3 0 0	—	1 $\frac{1}{2}$	1 $\frac{1}{2}$ 1 $\frac{1}{2}$	0 10 6	0 4 6	Oct. 18

FOREIGN DIVIDEND MINES.

35500 Alamillos, <i>l.</i> , Spain [†]	2 0 0	...	1 1/4	1 1/2	...	1 19 0	0 0	6. Oct.	18
30000 Almada and Trito Consul., <i>s²</i> [†]	1 0 0	...	3/4	3/4	...	0 6 3	0 0	1. May	18
30000 Australian, <i>c.</i> , South Australia [†]	2 7 6	...	1 3/4	1 3/4	...	1 1 6	0 0	2. July	18
10000 Battle Mountain, <i>c.</i> (6240 part pd.)	5 0 0	...	—	—	...	0 10 0	0 0	10. Nov.	18
15000 Birdseye Creek, <i>g.</i> , California [†]	4 0 0	...	5/4	3 1/2	...	0 14 0	0 0	2. June	18
30000 Cape Copper Mining, <i>s.</i> So. Africa	7 0 0	...	28	27 1/2	...	3 2 6	0 0	17. Dec.	18
34433 Cedar Creek, <i>g.</i> , California [†]	5 0 0	...	3/4	3 1/2	...	0 5 0	0 0	2. June	18
85000 Cesena Sul. Co., Romanga, Italy [†]	10 0 0	...	—	—	...	0 18 0	0 0	2. Aug.	18
15000 Chicago, <i>s.</i> , Utah [†]	10 0 0	...	3/4	3 1/2	...	2 8 0	0 0	4. Nov.	18
65000 Colorado United, <i>s.</i> , Colorado [†]	5 0 0	...	2 1/4	1 1/2	...	0 13 6	0 0	4. Jan.	18
10000 Copiapo, <i>c.</i> , Chile [†] (230 shares)	18 15 6	...	—	—	...	7 11 5	0 0	3. May	18
100000 Don Pedro North del Rey [†]	0 18 0	...	3/4	3 1/2	...	2 8 9	0 0	2. Mar.	18
23500 Eberhardt & Aurora, <i>s.</i> , Nevada [†]	10 0 0	...	5	4 1/2	...	1 8 0	0 0	3. Dec.	18
70000 English & Australian, <i>s.</i> , Aust.	3 10 0	...	1 3/4	1 3/4	...	2 16 9	0 0	1. Mar.	18
30000 Flagstaff, <i>s.</i> , Utah [†]	10 0 0	...	3/4	3 1/2	...	4 2 2	0 0	5. July	18
28000 Fortuna, <i>l.</i> , Spain [†]	3 0 0	...	4 1/2	3 1/2	...	7 4 11	0 0	1 9. Apr.	18
55000 Frontino & Boliviana, <i>g.</i> , New Gran. [†]	3 0 0	...	2 1/4	2 1/4	...	0 2 6	0 0	1 6. Sept.	18
50000 Gold Run, <i>hyd.</i>	1 0 0	...	—	—	...	0 2 4	0 0	4. Oct.	18
100000 Hercules and Roe, <i>s.</i> , Colo., <i>fy.</i> pd.	2 0 0	...	—	—	...	2 8 0	0 0	1. Jan.	18
58000 Kapunda Mining Co. Australia [†]	1 3 0	...	—	—	...	2 4 0	0 0	6. June	18
20000 Last Chance, <i>s.</i> , Utah	5 0 0	...	3/4	3 1/2	...	0 14 0	0 0	2. July	18
15000 Linares, <i>l.</i> , Spain [†]	3 0 0	...	4 1/2	3 1/2	...	17 12 10	0 0	2. Aug.	18
65000 London and California, <i>g²</i> [†]	3 0 0	...	3/4	3 1/2	...	0 1 0	0 0	1. July	18
7537 Lusitanian, Portugal [†] (45 sh.)	3 10 0	...	—	—	...	1 11 6	0 0	1 6. Mar.	18
5000 Mamm Copperopolis of Utah, <i>s.</i> , <i>c.</i>	10 0 0	...	—	—	...	0 5 0	0 0	5. Dec.	18
5000 Mountain Chief, <i>s.</i> , Utah [†]	10 0 0	...	—	—	...	0 4 0	0 0	4. Jan.	18
10000 Pontgibaud, <i>s.-l.</i> , France [†]	20 0 0	...	22	19 21	...	26 19 8	0 0	19. Dec.	18
100000 Port Phillip, <i>g.</i> , Clunes [†] (£2 sh.)	1 0 0	...	5/4	3 1/2	...	1 12 0	0 0	1. Mar.	18
54000 Richmond Consols, <i>s.</i> , Nevada [†]	5 0 0	...	8 1/2	8 1/2	...	7 1 6	0 0	10. Feb.	18
40000 Santa Barbara, <i>g.</i> , Brazil	0 10 0	...	3/4	2 1/2	...	0 5 9	0 0	1. Nov.	18
120000 Scottish Australian Mining Co. [†]	1 0 0	...	1 3/4	1 3/4	...	15 per cent.	0 0	Nov.	18
80000 Scottish Austral. Mining Co., New	0 10 0	...	7/4	3 1/2	...	15 per cent.	0 0	Nov.	18
122500 Sierra Buttes, <i>g.</i> , California [†]	3 0 0	...	2 1/2	2 1/2	...	2 0 6	0 0	1 6. Apr.	18
140252 S. B. Plumas Eureka	2 0 0	...	3/4	2 1/2	...	2 1 0	0 0	3. Oct.	18
2623000 St. John del Rey [†] (£6 stock + multiples dealt in)	—	265 275	—	—	...	1/2 year 15 p. cent. for Dec.	0 0	Dec.	18
30000 Tolima, <i>g.</i> , So. America	5 0 0	...	—	—	...	0 11 6	0 0	6. May	18
28000 Victoria (London), <i>g.</i> , Australia	1 0 0	...	3/4	3 1/2	...	0 12 6	0 0	1 7. Jan.	18
15000 Western Andes, <i>s.-l.</i> , New Granada	5 0 0	...	—	—	...	0 12 0	0 0	12. July	18
21000 W. Prussian (5500 pref. sh. 10. pd)	10 0 0	...	10 1/2	10 1/2	...	1 10 0	0 0	4. Jan.	18

NON-DIVIDEND FOREIGN MINES

Shares	Mines.	Paid	Last Pr.	Close. Pr.	Last Ch.
120000 Argentino, <i>g</i> , Argentine Republic	.....	5 0 0	3 1/2	3 1/2	.....
80000 Blue Tent, <i>hyd.</i> , California	.....	5 0 0	2 1/2	2 1/2	Fully paid
10000 Buena Ventura, <i>l</i> , Llano de las Infantas, Spain (22 sh.)	0 10 0	.....	.....	.....	.....
15000 Canada, <i>g</i> , Canada	1 0 0	.....	1 1/2	1 1/2	Mar. 1
49285 Unquia, <i>g</i> , <i>s</i> , Nicaragua ^{**}	2 0 0	.....	5 1/2	5 1/2	.....
75000 Colombian Hydraulic, <i>g</i> , Colombia	1 0 0	.....	.....	.....	Fully paid
18000 Condes de Oñati, <i>s</i>	.....	5 0 0	.....	.....	.....
20000 English Australian, <i>g</i> , Victoria ^{**}	1 0 0	.....	3 1/2	3 1/2	Fully paid
35000 Excelsior Hydraulics, Gold Washing Co., California ^{**}	6 0 0	.....	.....	.....	.....
100000 Esmeralda, <i>g</i> , <i>s</i> , California ^{**}	1 0 0	4s	2s. 4s.	2s. 4s.	Dec. 1
100000 Frontenac, <i>l</i> , Ontario Canada	1 0 0	.....	.....	.....	Fully paid
40000 Holcombe Valley, <i>g</i> , California	1 0 0	.....	.....	.....	.....
8000 Horuachos, <i>s</i> , <i>l</i> , Spain	10 0 0	.....	.....	.....	Fully paid
12000 Hultafall, <i>s</i> , <i>l</i> , Örebro, Sweden	5 0 0	3	2 3	2 3	.....
12000 Hunter Consolidated, <i>s</i> , Utah	10 0 0	.....	.....	.....	Fully paid
20000 Imperial Brazilian Collieries, Brazil	5 0 0	.....	.....	.....	Fully paid
7500 Isabelle, <i>g</i> , <i>s</i> , California (220 shares)	5 0 0	.....	.....	.....	Fully paid
100000 I. & L., <i>g</i> , <i>s</i> , California ^{**}	1 0 0	3 1/2	3 1/2	3 1/2	Oct. 1
50000 Javalli, <i>g</i> , Nicaragua ^{**}	3 0 0	3 1/2	3 1/2	3 1/2	Fully paid
3500 La Manche, <i>l</i> , Newfoundland	10 0 0	.....	.....	.....	.....
120000 Lancastor, <i>l</i> , <i>s</i> , Vizcaya, Spain (42 shares)	1 15 0	.....	.....	.....	Fully paid
12000 Menzenberg, <i>c</i> , Bonn, Germany ^{**}	5 5 0	.....	.....	.....	Mar. 1
4588 New Bensberg, <i>l</i> , Germany	5 0 0	.....	.....	.....	Fully paid
68000 New Quebecada, <i>c</i> , Venezuela ^{**}	5 0 0	1 1/2	1 1/2	1 1/2	Nov. 1
20000 New Zealand Kapanga, <i>g</i> , Cromandel ^{**}	4 0 0	3/4	3/4	3/4	.....
3000 Oregon, <i>g</i> , Oregon, U.S. (preference shares)	4 0 0	.....	.....	.....	Fully paid
50000 Panuleillo, <i>c</i> , Chile ^{**} (450000 debentures)	4 0 0	1 1/2	3 1/2	3 1/2	.....
90000 Festarons United, <i>g</i> , Italy ^{**}	3 0 0	4s	2s. 4s.	2s. 4s.	Fully paid
25000 Pitanqu, <i>g</i> , Brazil (incl. 6000 sh. £1 fully paid)	5 0 0	3/4	3/4	3/4	.....
25000 Placerica, <i>g</i> , California	2 0 0	2 1/2	2 1/2	2 1/2	Aug. 1
50000 Providencia and New Rosario, <i>s</i> , Mexico ^{**}	1 0 0	.....	.....	.....	Fully paid
40000 Rawenscliff, <i>g</i> , New Zealand; <i>c</i> , South Australia	0 5 0	3/4	3/4	3/4	July 1
22,181,000 Rio Tinto, <i>c</i> , Huelva, Spain	Stock	62	63 65	63 65	Fully paid
100000 Rossa Grande, <i>g</i> , Brazil ^{**} (51 shares)	1 0 0	3s.	1s. 3s.	1s. 3s.	.....
20040 Russia Copper, Orenburg and Ufa ^{**}	10 0 0	.....	.....	.....	Fully paid
32000 Sentein, <i>l</i> , Ariège, France	1 0 0	.....	.....	.....	Fully paid
10000 Silver Flume, <i>s</i> , Colorado ^{**}	1 0 0	.....	.....	.....	Fully paid
80000 Tecoma, <i>s</i> , Utah ^{**}	10 0 0	5%	3 1/2	3 1/2	.....
43174 United Mexican, <i>s</i> , Mexico ^{**}	29 0 3	3 1/2	3 1/2	3 1/2	May 1
14000 Utah, <i>g</i> , <i>s</i> , Utah ^{**}	5 0 0	.....	.....	.....	Fully paid
50000 Virensberg, <i>c</i> Rheinbreitbach, Germany ^{**}	2 0 0	.....	.....	.....	Fully paid
15000 Yorke Peninsula, <i>s</i> , South Australia	1 0 0	4s	2s. 4s.	2s. 4s.	.....
58500 Yorke Peninsula, <i>s</i> , South Australia Preference	1 0 0	5%	3 1/2	3 1/2	.....

6 Have made calls since last dividend was paid

FOREIGN AND MISCELLANEOUS STOCKS, BONDS, AND DIVIDENDS

FOREIGN AND MISCELLANEOUS STOCKS, BONDS, LOANS, AND TRUSTS		Closing Prices	Closing Prices		
Argentine, 1868, 6 percent.	70 1/4	71 1/4	Foreign and Col. Gov. Trust, 6 p. c. t.	64	69
Bolivia, 6 per cent.	27 1/2	28 1/4	Do., 5 per cent., 2d issue	48	52
Brazilian, 1866, 6 per cent.	59	59 1/4	Do., 6 percent., 3d issue	64	69
Chilian, 1866, 7 per cent.	74	78	Do., 1872, 5th issue	59	63
City of Providence, 6 p.c. coupon bonds	100	102	Do., 1873, 5th issue	59	63
Egyptian, Gov. preference	63	63 1/4	Peruvian, 1870, 6 per cent.	12	15
Do., unified debt, scrip	44 1/2	45 1/4	Do., 1872, 5 per cent.	10	11 1/2
Do., 7 per cent., V. M.	70	75	Russian, 5 1/2 percent, L. Mort.	100	101
Do., 9 per cent. guar.	74	78	Spanish, Quilmes Mort., 5 p. st.	100	101
Do., K. Daire, Saahil	48 1/2	49 1/2	Upland Steamship	100	101

NON-DIVIDEND MINES.

Shares.	Paid.	Last wk.	Clos. pr.
40000 Aberdaunant, <i>l.</i> Llanidloes*	1 0 0 ..	34	34 34
25600 Aberlynn,* <i>l.</i> <i>b1.</i> Carnarvon	10 0 0 ..	13	10 12
10000 Aberystwith,* <i>s-1.</i> Cardigan	8 0 0 ..	—	—
80 Albion, <i>t.</i> Cornwall	100 0 ..	—	—
12000 Ashton, <i>l.</i> Carnarvonshire*	5 0 0 ..	1	34 1
5000 Ballycumiskey, <i>c.</i> Scunll	2 0 0 ..	—	—
12000 Bedfawr Unit,* <i>c.</i> Tavist. (L. lab.)	0 1 0 ..	34	34 34
12000 Bell Ven, <i>t.</i> <i>c.</i> Gwynnap	2 0 0 ..	2	134 2
30000 Bettws-y-Coed,* <i>t.</i> (20,000 issued)	1 0 0 ..	134	1 134
8000 Blaen Caenlan,* <i>t.</i> Cardigan	3 0 0 ..	—	—
3937 Blue Hill, <i>t.</i> <i>s.</i> St. Agnes	4 6 6 ..	34	34 34
20000 Bodirfrys,* <i>l.</i> <i>b1.</i> Denbighshire	1 0 0 ..	134	34 134
1000 Bodllohe Vale,* <i>s-1.</i> Durham	5 0 0 ..	—	—
200 Botallack, <i>t.</i> St. Just	123 15 0 ..	1734	15 1734
2000 Bowden Hill,* <i>s.</i> <i>mn.</i>	1 0 0 ..	—	—
6000 Bradwell Moss Rake	—	1	34 1
10 00 British,* <i>s-1.</i> Wrexham	2 0 0 ..	3	2 3
256 Browngeley,* <i>s.</i> St. Neot	0 10 0 ..	52	34 52
5000 Cambrian,* <i>s-1.</i> Cardiganshire	2 0 0 ..	234	2 234
20000 Central Foxdale, <i>t.</i> of Man (24, sh.)	1 5 0 ..	—	—
10000 Central Van,* <i>l.</i> <i>b1.</i> Llanidloes	5 0 0 ..	—	—
5120 Clementina, <i>t.</i> Llanrwst*	1 0 0 ..	134	1 134
7500 Combellack,* <i>t.</i> Wendron	2 0 0 ..	—	—
6000 Combminster,* <i>s-1.</i> North Devon	0 7 0 ..	34	134
14000 Crosswood Mining Lands, <i>t.</i> *	1 0 0 ..	2	134 2
15000 Cwm Brynwo,* <i>l.</i> Cardigan	2 0 0 ..	234	2 234
15000 Cwm Dwyfor,* <i>c.</i> St. Wales	1 0 0 ..	—	—
5000 Dito, 12% per cent. pref.	1 0 0 ..	—	—
3000 Cwmystwith* (New), <i>t.</i> Cardigansh.	5 0 0 ..	—	—
17800 D'Eresby Cons., <i>l.</i> <i>b1.</i> Carnarvon	10 0 0 ..	8	6 8
1024 D'Eresby Mountain, <i>l.</i> <i>b1.</i> Llanrwst	20 0 0 ..	40	30 40
20000 Denbighshire Consolidated, <i>l*</i>	3 0 0 ..	134	134 134
12000 Derwent,* <i>t.</i> Durham	6 0 0 ..	34	34 34
10000 Dubby Syke, <i>l.</i> Durham*	0 15 0 ..	4s.	4s.
614 East Cardigan, <i>c.</i> Cleerf	3 2 0 ..	34	34 34
4000 East Chiverton, <i>t.</i> Ferranzabuloe	7 7 6 ..	134	1 134
3000 East Craven Moor,* <i>t.</i> Pateley Edge	10 0 0 ..	10	8 10
6000 East Goginan, <i>t.</i> Cardigan	2 0 0 ..	—	—
30000 East Roman Gravels,* <i>l.</i> Salop	1 0 0 ..	—	—
18000 East Van,* <i>l.</i> Llanidloes	8 0 0 ..	2	134 2
1722 East Wh. Lovell, <i>t.</i> Helston	9 16 0 ..	34	34 34
20000 Elgar,* <i>s-1.</i> Cardiganshire	1 0 0 ..	—	—
12500 Frongoch, <i>t.</i> Cardigan (11000 issued)	2 0 0 ..	234	2 234
10000 Frosterley,* <i>t.</i> Durham	1 0 0 ..	—	—
3950 Gawton, <i>c.</i> Tavistock	4 5 6 ..	34	34 34
12000 Gian Clwyd,* <i>l.</i> Gwyddelwern	1 0 0 ..	—	—
14000 Glencrory,* <i>s-1.</i> Isle of Man	4 5 0 ..	34	34 34
10000 Glym,* <i>l.</i> Llanidloes	2 0 0 ..	34	34 34
12000 Goginan, & Lvl. Newydd, <i>s-1.</i> Card.*	2 10 0 ..	—	—
20000 Goreu, <i>s-1.</i> Carmarth.	1 0 0 ..	1	34 1
20000 Gt. E. Foxdale, <i>t.</i> of Man (11, sh.)	0 18 0 ..	—	—
12000 Great Holway,* <i>t.</i> Flintshire	5 0 0 ..	5	4 5
9500 Great Pant-y-Pyddew, <i>t.</i> Holywell	2 0 0 ..	—	—
6000 Gt. Wheal Eleanor, <i>t.</i> North Bovey	1 17 6 ..	34	34 34
8000 Great Wheal Rodd,* <i>s-1.</i> Cornwall	0 10 0 ..	1	34 1
10000 Harsheope Gll,* <i>t.</i> Durham (£1 sh.)	0 5 0 ..	—	—
12000 Hartington Moor,* <i>carb.</i> <i>l.</i> Derby	1 0 0 ..	2	134 2
6400 Harwood,* <i>l.</i> Durham	0 15 0 ..	1s. 8d.	1s. 8d.
3000 Herodsfoot, <i>t.</i> near Liskeard	1 0 0 ..	4	2 34
1+1000 Hington Down, <i>c.</i> Cawstock†	0 6 0 ..	—	—
8000 Hush Eisteddfod Miners, <i>s-1.</i>	2 0 0 ..	—	—
2500 Killaloe, <i>s-1.</i> Tipperary	1 0 0 ..	—	—
3000 Killifreth, <i>t.</i> Chacewater	2 12 6 ..	134	134 134
25000 Kinghorn Con., <i>s-1.</i> Stoke Climsland, <i>Ditto, preference</i>	1 0 0 ..	—	—
12000 Ladywell,* <i>l.</i> Salop	2 10 0 ..	34	34 34
12000 Ditto, 10 per cent. pref., 12. each..	0 10 0 ..	34	34 34
8000 Lead Era,* <i>l.</i> Mold	2 2 0 0 ..	34	2 34 34
2500 Levant, <i>c.</i> <i>t.</i> St. Just	10 14 6 ..	—	—
6000 Livingstone Consols, <i>t.</i> St. Agnes	1 0 0 ..	—	—
10000 Lomax, <i>s-1.</i> Ferranzabuloe	1 0 0 ..	2	134 2
5120 Lovell, <i>t.</i> Wendron	1 0 0 ..	—	—
25000 Llanrhafod, <i>t.</i> Montgomery*	2 0 0 0 ..	—	—
3+1000 Llanrwst,* <i>l.</i> Carnarvon	2 0 0 ..	2	1 2
1800 Mawston,* <i>l.</i> South Wales	1 0 0 ..	2	134 2
6000 Medlyn Moor, <i>t.</i> Wendron	2 9 10 ..	—	—
1+1000 Mlynw, <i>t.</i> Cardigan	3 0 0 ..	134	34 134
7000 Mid Devon Copper*	8 0 0 ..	134	1 134
21000 Ditto	0 2 6 ..	—	—
8000 Mineral Corp. of Great Britain*	10 0 0 ..	11	10 11
11000 Monydd Gorddu, <i>t.</i> Cardigan (Red.)	8 0 0 ..	234	234 234
13000 Morfa Du, <i>t.</i> <i>g.</i> <i>s.</i> Anglesea*	1 0 0 ..	1	34 1
25000 Nant-y-Ronen, <i>s-1.</i> Cardigan*	1 0 0 ..	—	—
15000 Nascent Copper*	1 0 0 ..	—	—
4768 New Brownfloyd,* <i>c.</i> Cardigan (M. sh.)	3 16 0 ..	3	234 3
8000 New Dolecath, <i>t.</i> <i>c.</i> Camborne*	8 0 0 ..	134	134 134
23000 New East Foxdale, <i>s-1.</i> Isle of Man	0 15 0 ..	—	—
1492 New Hendra, <i>t.</i> Breage	3 9 0 ..	—	—
3500 New Tincroft, <i>t.</i> Lelant	6 0 0 ..	2	234 2
4000 North Cornwall,* <i>t.</i> Cornwall	5 0 0 ..	5	5
30000 North Laxey,* <i>t.</i> Isle of Man	1 0 0 ..	4s.	2s. 4s.
2000 North Levant, <i>t.</i> <i>c.</i> St. Just	12 16 0 ..	1	34 1
5000 North Molton, <i>c.</i> <i>mn.</i> , Devon	1 0 0 ..	1	1
8936 North Treskerby, <i>c.</i> St. Agnes	8 17 10 ..	—	—
6400 Ool Hills,* <i>s-1.</i> Limerick	5 0 0 ..	—	—
12000 Pandora,* <i>l.</i> Carnarvon	2 0 0 ..	34	34 34
4000 Park Valley,* <i>s-1.</i> North Devon	0 4 0 ..	34	34 34
6000 Parccombe, <i>s-1.</i> Devon	0 5 0 ..	2	134
16923 Parys Corporation,* <i>c.</i> Anglesea	3 0 0 ..	2	134 2
12000 Phoenix, & W. Phoenix, <i>t.</i> <i>c.</i> Link†	5 10 3 ..	—	—
4000 Pateley Bridge, <i>t.</i> Yorkshire	1 0 0 ..	134	134 134
7000 Ploton,* <i>s-1.</i> Holywell, fully paid..	1 0 0 ..	1	34 1
12000 Plymlynmouth, <i>t.</i> Llanidloes*	2 0 0 ..	6s.	4s. 6s.
10000 Port Nigel,* <i>s-1.</i> Carnarvonshire	2 0 0 ..	34	34 34
2000 Pridex Wood, <i>t.</i> Llanivery	5 0 0 ..	—	—
1528 Prince of Wales, <i>c.</i> Cawstock†	2 8 0 ..	6d.	6d.
6000 Relastian Consols, <i>c.</i> Gwinear	0 10 0 ..	—	—
5000 Rhyladun,* <i>l.</i> Mold	10 0 0 ..	11	10 11
15000 Rockhope, <i>t.</i> Durham*	1 10 0 ..	—	—
4200 Snowbrook, <i>s-1.</i> Montgomery	5 0 0 ..	—	—
8000 So. Cwmystwith, <i>t.</i> Carnarvonshire	2 0 0 ..	3	2 3
9 000 South Darren, <i>t.</i> Cardigan*	1 10 0 ..	134	134 134
30000 South of Eresby Mountain, <i>—</i>	1 0 0 ..	134	134 134
6000 So. Devon United Copper*	1 0 0 ..	1	34 1
512 South Doicorth, <i>t.</i> <i>c.</i> Redruth	12 8 0 ..	—	—
5000 So. Molton Cons., <i>s-1.</i> No. Devon	0 3 6 ..	—	—
18000 South Roman Gravels,*	1 10 0 ..	3s.	1s. 3s.
6000 South Roskar, <i>t.</i> <i>c.</i> Camborne	8 5 0 ..	—	—
6000 South Tolcarne, <i>t.</i> <i>c.</i> Camborne	2 5 6 ..	34	34 34
937 South Wheal Crofty, <i>t.</i> Illogan	45 10 10 ..	7 7 5	—
12000 Steddfod, <i>s-1.</i> Cardigan	1 0 0 ..	134	1 134
3000 St. Lawrence, Amal., <i>t.</i> Flintshire*	2 0 0 ..	—	—
10000 St. Patrick, <i>t.</i> Halkyn, Holywell*	1 0 0 ..	134	1 134
8000 Success, &c., <i>t.</i> Derb. (12,000. called)	1 0 0 ..	—	—
16000 Sunny-side,* <i>t.</i> Durham	2 0 0 ..	—	—
30000 Talboty, <i>s-1.</i> Cardiganshire	1 0 0 ..	—	—
40000 Tamar, <i>s-1.</i> Bedraston*	1 0 0 ..	134	134 134
5400 Teesdale, <i>s-1.</i> Durham	1 0 0 ..	1	1
14000 Teign Valley, <i>c.</i> <i>bar.</i> , Bridford	1 0 0 ..	—	—
10000 Temple, <i>t.</i> Cardigan*	1 0 0 ..	—	—
10000 Tolius Consols, <i>c.</i> Redruth	5 0 0 ..	34	34 34
4000 Treleigh Wood, <i>t.</i> Redruth	6 1 0 ..	—	—
12000 Trethelan, <i>s-1.</i> Crantock*	2 0 0 ..	—	—
640 Truro,* <i>t.</i> Merquis, Flintshire	10 0 0 ..	—	—
5000 Tyn-y-Fron,* <i>t.</i> Cardigan	1 0 0 ..	1	34 1
5000 Ditto	0 5 0 ..	—	—
1000 Vaughan*, <i>t.</i> Cardiganshire	10 0 0 ..	—	—
18000 Victor, <i>s-1.</i> Flintshire (£1 share)	0 5 0 ..	—	—
12000 West Ashton, <i>t.</i> Carnarvon	1 0 0 ..	134	134 134
8000 West Bassett, <i>c.</i> Illogan†	6 13 4 ..	54	44 5
5500 West Combminster, <i>s-1.</i> North Devon	1 0 0 ..	—	—
7000 Ditto	0 2 6 ..	—	—
3000 W. Craven Moor, <i>t.</i> Pateley Bridge*	10 0 0 ..	9	7 9
12000 West Goginan, <i>c.</i> Cardiganshire	3 0 0 ..	34	34 34
10000 West Liangynog, <i>s-1.</i> Montgomery.	2 0 0 ..	—	—
3000 West Mary Ann, <i>t.</i> Menheniot	0 12 6 ..	34	34 34
50000 West Milw., <i>t.</i> Flint	1 0 0 ..	5	5
10300 W. of Englnld. Spat. Iron & Ld. Smelt.	5 0 0 ..	5	5
20000 West Pateley Bridge, <i>t.</i> Yorkshire	1 0 0 ..	212	2 212
15000 West Roskar, <i>t.</i> <i>s-1.</i> <i>b1.</i> <i>c.</i> Camborne	5 10 0 ..	—	—
10000 West Vor*, <i>t.</i> <i>c.</i> <i>ars.</i> Breage	1 0 0 ..	—	—
30000 West Wheal Feyer, <i>t.</i> Redruth	0 10 0 ..	3	234 3
6000 Wheat Agar, <i>c.</i> Illogan	12 10 0 ..	4	314 4
512 Wheat Basset, <i>c.</i> Illogan†	25 2 6 ..	134	11 134
6000 Wheat Coates, <i>t.</i> St. Agnes	2 0 0 ..	—	—
2635 Wheat Comfort, <i>c.</i> Gwynnap	1 7 0 ..	—	—
6000 Wheat Oreb, <i>c.</i> Tavistock	4 6 0 ..	34	34 34
5179 Wheat Grenville, <i>c.</i> Camborne	4 10 0 ..	34	34 34
12000 Wheat Russell, <i>c.</i> Tavistock	2 1 6 ..	—	—
1000 Wheat Udal, <i>t.</i> Lelant	14 0 0 ..	6	10 11
4096 Wheat Udal, <i>t.</i> Redruth	14 8 6 ..	54	36 54
2324 White Cliff, <i>s-1.</i> Llanrwst	5 0 0 ..	—	—
5000 Wicklow, <i>s-1.</i> <i>b1.</i> Wicklow	2 10 0 ..	—	—

IRON AND COAL COMPANIES.

Shares.	Company.	Paid.	Pr.
100	Abbot, John, and Co. [L.]	475	0 0 .. 35
15	Albion Steel and Wire Co. [L.]	14	0 0 ..
5	Altalith Colliery Co. [L.]	5	0 0 .. 2½
100	Ashbury Co. [L.]	90	0 0 .. 60
3	Bagnall, John, and Sons [L.]	3	0 0 .. 5
10	Benhar Coal Co. [L.]	10	0 0 .. 14
10	Bilbao Iron Ore Co. [L.]	50	0 0 .. 18
5	Bilson & Crump Meadow Coll. Co. [L.]	10	0 0 .. 1½
4	Blair Cwmback Coal Co. [L.]	4	0 0 ..
80	Blasenavon Iron and Steel Co. [L.]	80	0 0 ..
100	Bolewick, Vaughan, and Co. [L.]	50	0 0 .. 7
60	Bowling Iron Co. [L.]	50	0 0 ..
50	Britannia Ironworks [L.]	25	0 0 ..
50	Brown, Bailey, and Dixon [L.]	40	0 0 .. 10
100	Brown, John, and Co. [L.]	70	0 0 .. 26
3	Cakemore, Csway. Grn., &c., ord. sh.	3	0 0 ..
3	Ditto (7½ per cent. pref. shares)	3	0 0 ..
10	Cammell and Co. [L.]	80	0 0 .. 18
20	Cannock and Huntington Coal [L.]	10	0 0 .. 9
10	Cardiff & Swansea St. Coal Co. [L.]	9	0 0 .. 7½
10	Cardigan Steel and Wire Co. [L.]	8	10 0 .. 11½
10	Central Swedish Iron and Steel [L.]	10	0 0 .. 1
5	Chapel House Colliery	5	0 0 .. 1
50	Charlton Iron Co. [L.]	50	0 0 .. 8
80	Chatterley Iron Co. [L.]	45	0 0 .. 41
10	Chillingdon Iron Co. [L.]	10	0 0 .. 13½
10	Consett Iron Co. [L.]	7	10 0 .. 8½
1	Consett Swedish Iron Ore [L.]	1	0 0 .. 1
50	Cooke, William, and Co. [L.]	45	0 0 .. 45
20	Darlington Iron Co. [L.]	12	10 0 .. 5½
60	Davy Brothers [L.]	22	10 0 .. 2½
5	Diamond Fuel Co. [L.]	5	0 0 ..
23	Ebbw Vale Co. [L.]	20	0 0 .. 17
100	Fox, Samuel, and Co. [L.]	80	0 0 .. 25
10	General Mining Ass. [L.] (12 returned)	9	0 0 .. 4
5	Great Western Coal Co. [L.]	5	0 0 ..
2	Gwynedd Colliery Co. [L.]	2	0 0 ..
15	Hopkins, Gilkes, and Co. [L.]	12	0 0 .. 11½
50	Knowles, Andrew, and Sons [L.]	17	0 0 .. 10
10	Llai Hall Coal, Iron, & Firebrick [L.]	10	0 0 .. 5
5	Littledale Woodside Coll. Co. [L.]	5	0 0 .. 4
10	Llynvli, Ogmore, & Tonna Co. [L.]	50	0 0 .. 5
10	Lydney and Wigpool Iron Ore [L.]	8	5 0 .. 9
10	Marbley Iron Ore Co. [L.]	10	0 0 .. 9½
6	Mersey Steel and Iron Co. [L.]	8	0 0 ..
10	Midland Iron Co. [L.]	8	0 0 .. 1½
5	Mold Argold Colliery Co. [L.]	5	0 0 .. 4
10	Monkland Iron and Coal Co. [L.]	10	0 0 .. 9½
4	Mwyndy Iron Ore [L.]	3	15 0 .. 2½
100	Nant-y-Glo and Blaenau (8 p.c. pref.)	100	0 0 .. 12
3	Nerbudda Coal and Iron (L. & Red.)	2	0 0 .. 1½
20	New Sharston Collieries [L.] Pref.	20	0 0 .. 2½
10	Newport Abercarn Coal Co. [L.]	10	0 0 .. 4½
10	Northmpnt. Coal, Iron & Wagon [L.]	8	0 0 ..
10	Northfield Iron Co. [L.]	8	10 0 .. 8½
1	Norton Green Coal Co. [L.]	1	0 0 ..
25	Palmer's Shipbuilding and Iron [L.]	25	0 0 .. 15
100	Parkgate Iron Co. [L.]	65	0 0 .. 22
20	Patent Nut and Bolt Co. [L.]	14	0 0 .. 5½
20	Patent Shaft and Axletree [L.]	10	0 0 .. 1
20	Pelsall Coal and Iron [L.]	17	10 0 .. 11
50	Phoenix Bessemer Co. [L.]	40	0 0 ..
50	Rhymey Iron Co. [L.]	50	0 0 .. 16½
10	Sandwell Park Colliery Co. [L.]	10	0 0 .. 13½
10	Ditto New.	5	0 0 .. 2
100	Shotton Iron Co. [L.]	100	0 0 .. 65
100	Sheepbridge Iron and Coal [L.]	70	0 0 .. 47½
50	Silkstone & Dodworth Ch. & Iron [L.]	32	0 0 .. 28
20	Skerne Ironworks [L.]	20	0 0 .. 16
80	Somersetshire Iron Co. [L.]	60	0 0 ..
25	South Wales Coal Co. [L.]	23	0 0 .. 3
100	Staveley Iron and Coal Co. [L.]	60	0 0 .. 7
100	Ditto ditto New.	10	0 0 .. 7
100	Swansea Valley Steam Coll. Co. [L.]	6	0 0 ..
100	Thames Iron Company	100	0 0 ..
50	Tredegar Iron and Coal Co. [L.]	20	0 0 .. 18
25	Ditto B. shares	25	0 0 .. 12
20	Ulverston Mining Co. [L.]	14	0 0 .. 7
10	Vancouver Coal [L.]	6	0 0 .. 3½
100	Vickers, Sons, & Co. [L.]	100	0 0 .. 1
50	Welsh Ironworks Co. [L.]	50	0 0 ..
25	W. Cumberland I. and Steel [L.]	20	0 0 .. 15
10	West Mostyn Coal [L.] (12 p.c. pref.)	10	0 0 ..
5	West Swansea Colliery Co. [L.]	5	0 0 ..
10	Whitehaven Iron Co. [L.]	10	0 0 ..
100	Wigan and Whiston Coal Co. [L.]	70	0 0 ..
100	Wigan Coal and Iron Co. [L.]	75	0 0 ..

WAGON COMPANIES

10	Birmingham Wagon Co. [L.]	10	0	0	12 $\frac{1}{2}$	13
10	Ditto, 2nd issue	10	0	0	1 $\frac{1}{2}$	2
10	Ditto, pref., 6 per cent.	10	0	0	10 $\frac{3}{4}$	10
20	British Wagon Co. [L.]	10	0	0	1 $\frac{1}{2}$	1
10	Gloucester [L.]	10	0	0	5 $\frac{1}{2}$	6
10	Ditto, 5th issue	5	0	0	2 $\frac{1}{2}$	2
10	Met. Rail. Car. and Wagon Co. [L.]	5	0	0	2 $\frac{1}{2}$	2
5	Ditto, pref., 6 per cent.	2	0	0	$\frac{3}{4}$	1
10	Midland	10	0	0	6 $\frac{1}{2}$	7
20	North Central Wagon Co.	20	0	0	19	20
5	Rail. Car. [L.] (Oldbury)	5	0	0	1 $\frac{1}{2}$	1
5	Ditto, pref., 6 per cent.	5	0	0	$\frac{3}{4}$	1
20	Sheffield Wagon Co. [L.]	15	0	0	$\frac{3}{4}$	1
10	Yorkshire Wagon Co. [L.]	10	0	0	$\frac{3}{4}$	1

TELEGRAPH COMPANIES

**81. "Anglo-American	100	0	0	53	54
10 Brazilian Submarine	10	0	0	65	61
20 Direct United States Cable	20	0	0	103	109
10 Eastern	10	0	0	73	73
10 East. Exten., Australia and China	10	0	0	73	73
10 Great Northern	10	0	0	73	73
25 Indo-European	25	0	0	20	21
10 Mediterranean Extension	10	0	0	214	228
5 Reuters	5	0	0	94	104
Stk. Submarine	100	0	0	215	228
10 West India and Panama	10	0	0	13	13
20 Western and Brazilian	20	0	0	83	4

on, 7 percent. Mort. Bonds

MISCELLANEOUS.						
Stk. Atlantic and Great Western Leased Lines, Rental Trust	100	0	0	53	60	
25 Australian Agricultural	21	10	0	86	85	
25 Austral. Mort. Land and Finance [L.]	5	0	0	5½	5	
10 Avondale Engine [L.]	7	0	0	8	7	
Stk. Baltimore and Ohio, 6 per cent.	100	0	0	112	114	
10 Brighton Aquarium [L.]	10	0	0	6	7	
Stk. Cent. of New Jersey Cos. Mort.	100	0	0	88	90	
Stk. Cent. of Pacific of Calif., 1st Mort. 6 p.c.	100	0	0	112	114	
25 City of London Real Property [L.]	12	0	0	1½	1	
5 Diamond Rock Boring	4	10	0	3½	3	
15 English and Warehouse Credit	5	0	0	—	—	
16 Fore Street Warehouse [L.]	10	0	0	6	7	
15 Foster, Porter, and Co. [L.]	10	10	0	17	18	
5 Gen. Phos. & Chem. Works Co. [L.]	5	0	0	—	—	
1 Greenhill [L.]	1	0	0	—	—	
5 Kit Hill Tunnel [L.]	1	0	0	—	—	
17 Hudson's Bay Company	17	0	0	13½	14	
10 Huntington Copper and Sul. Co.	9	0	0	—	—	
Stk. Illinois Central, \$100 shares	100	0	0	87	89	
Stk. Illinois & St. Louis Bridge, 1st Mort.	100	0	0	83	85	
Stk. Ditto, 2nd Mort., 7 per cent.	100	0	0	40	45	
Stk. Illinois Cent. Sinking Fund, 6 p. cent.	100	0	0	101	100	
Stk. Ditto, 6 per cent.	100	0	0	111	113	
7½ Imperial Credit [L.]	7	10	0	7½	7	
— Ditto, Surplus Certificate	—	—	0	6½	6	
Stk. Lehigh Val. Cos. Mort., A., 6 p. cent.	100	0	0	104	100	
10 Milner's Safe [L.]	10	0	0	7	8	
25 National Discount [L.]	5	0	0	8	8	
Stk. N. Cent. Rail. Cos. Mort., 6 per cent.	10	0	0	93	90	
10 Pawson and Co. [L.]	8	0	0	¾	¾	dis
50 Peninsular and Oriental Steam	80	0	0	41	40	
Stk. Pennsylvania, Gen. Mort. 6 p. cent., 1880.	100	0	0	114	115	
Stk. Ditto, Con. Sink. Fund, 6 p. cent., 1905	100	0	0	105½	105	
Stk. Scottish Aust. Investment Company.	100	0	0	185	195	
Stk. Ditto, 6 per cent. Preference	100	0	0	124	120	
20 Suez Canal shares	20	0	0	—	—	
12 Telegraph Construc. & Maint. [L.]	12	0	0	29	29	
5 Ditto, Second Bonus Three per Cent	5	0	0	2½	2	
10 Tharsis Sulphur and Copper Co.	10	0	0	31	30	
Stk. Union Pacific Land Grant, 1st Mort.	100	0	0	110	113	
Stk. Union Pacific Railway, 1st Mort.	100	0	0	111	113	
5 West of England Compressed Peat	5	0	0	—	—	
5 Ditto	2	0	0	—	—	

b, blonde; *ci*, coal; *c*, copper; *g*, gold; *l*, lead; *s*, silver; *si*, slate; *sl*, silver-lead; *ti*, tin; *z*, zinc.

* Limited Liability Companies; † quoted on the Stock Exchange; I have paid dividends.